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ABSTRACT

Part of a seven-book series called "Programming for Students with Special Needs," this book offers all teachers information to enhance their understanding of learning disabilities and provides practical strategies to assist in teaching students with special needs. Section 1 discusses the definition of learning disabilities, labeling, and the domain model, which organizes student characteristics into interacting domains (metacognition, information processing, communication, academic, and social/adaptive). A domain model checklist is provided. Section 2 includes identification and program planning information that addresses early identification, student support teams, assessment, individualized program plans, maximizing student success, and long-range/transition planning. Examples illustrating the process of providing services are described. Section 3 describes practical strategies within specific domains. Strategies are provided for: (1) metacognition, thinking, and study and organizational skills; (2) receiving, organizing, storing and retrieving information, and gross and fine motor skills; (3) auditory skills, language skills, and language output; (4) reading, written expression, spelling, mathematics, science, social studies, and using textbooks; and (5) self-esteem, prosocial skills, and self-monitoring. Section 4 addresses other learning difficulties, including attention deficit hyperactivity disorder and fetal alcohol syndrome/effects. Sections 5 through 9 contain blackline masters, a list of other teaching resources, an annotated test inventory, and support network contacts. (Contains 143 references.) (CR)

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Teaching Students with Learning Disabilities

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This document is intended for:

<i>Students</i>	
<i>Teachers</i>	✓
<i>Administrators</i>	✓
<i>Counsellors</i>	✓
<i>Parents</i>	
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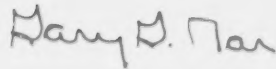
Message from the Minister of Education

Students with learning disabilities have diverse needs and interrelated difficulties that come between them and learning. Special education focuses on meeting the individual needs of these students – recognizing that all students are capable of learning with the right kind of help.

Teaching Students with Learning Disabilities is part of a seven-book series called *Programming for Students with Special Needs*. This book offers all teachers information to enhance their understanding of learning disabilities and provides practical strategies to assist in their work with students with special needs.

I would like to thank the many teachers and groups who provided advice and feedback in the development of this valuable resource.

Sincerely,

A handwritten signature in dark ink, appearing to read "Gary G. Mar". The signature is written in a cursive, slightly slanted style.

Gary G. Mar, Q.C.
Minister of Education

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- The Calgary Learning Centre
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- Children's Services Centre, Red Deer
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 - Alberta Associations for Bright Children
 - Alberta Association for Community Living
 - Alberta Home and School Councils' Association
 - Alberta School Boards Association
 - Alberta Teachers' Association
 - College of Alberta School Superintendents
 - Council for Exceptional Children (CEC), Alberta Federation
 - Learning Disabilities Association of Alberta
 - Premier's Council on the Status of Persons with Disabilities
 - University of Alberta, Department of Educational Psychology.

Introduction to the Series

Programming for Students with Special Needs is a series developed in response to a needs assessment survey conducted by the Special Education Branch of Alberta Education in the Spring of 1992.

The information provided by survey respondents has been used to guide the nature and content of the series. The respondents indicated the need for practical suggestions about instructional strategies, classroom management, preparing individualized program plans and understanding the nature of special needs. They also wanted information about the availability of special education resources.

The following books are included in the series. The information in each book is interrelated and can be used to provide instruction to all students.

Book 1

Teaching for Student Differences

Highlights strategies for differentiating instruction within the regular classroom for students who may be experiencing learning or behavioural difficulties, or who may be gifted and talented. It includes ideas for varying instructional time, the learning environment, resources, materials, presentation, assignments and assessments to accommodate students with diverse needs. This book contains instructional strategies for core subjects as well as by categories of differences; i.e., learning disabilities, behaviour disorders, and gifted and talented. A variety of useful forms to assist teacher planning is found in the appendices.

Book 2

Essential and Supportive Skills for Students with Developmental Disabilities

Includes:

- developmental checklists for communication skills; i.e., receptive, expressive, social, articulation and vocabulary
- checklists for gross and fine motor development, including colouring, graphics, manuscript printing and cutting
- charts and checklists which provide a continuum of life skills by domain (domestic and family life, personal and social development, leisure/recreation/arts, citizenship and community involvement, career development)
- checklists for mathematics, reading and writing to Grade 6
- an annotated list of other teaching resources.

Book 3**Individualized Program Plans**

Contains a process for IPP development and strategies for involving parents. This book provides information on writing long-term goals and short-term objectives along with case studies and samples of completed IPPs. It addresses transition planning and features forms and checklists to assist in planning.

Book 4**Teaching Students who are Deaf or Hard of Hearing**

Includes information on the nature of hearing loss and the various communication systems which may be used. The book contains information on amplification, educational technologies, program planning and teaching strategies.

Book 5**Teaching Students with Visual Impairments**

This resource offers basic information to help provide successful school experiences for students who are blind or visually impaired. The information in this book addresses:

- the nature of visual impairment
- educational implications
- specific needs
- instructional strategies
- the importance of orientation and mobility instruction
- the use of technology.

Book 7**Teaching Students who are Gifted and Talented**

(expected release date 1998)

Currently under development in collaboration with the Calgary Board of Education.

Programming for Students with Special Needs is not intended to be a complete authority on the many disciplines associated with the education of students with special needs. In providing instruction to students with special needs, staff should utilize the support services available in their jurisdictions.

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Introduction

Students with learning disabilities have diverse, complex and interrelated difficulties, often hidden or subtle, that affect their learning. Knowledge, support and understanding from all stakeholders in the lives of students with learning disabilities are essential.

All students, including those with learning disabilities, are capable of learning given the appropriate interventions to meet individual needs. This requires understanding students' characteristics, using a variety of instructional approaches, teaching students learning strategies, providing appropriate accommodations and using time flexibly.

This resource provides practical strategies for regular classroom and special education teachers. There are no quick fixes. Learning disabilities are lifelong conditions which are not "curable" but can be managed through the efforts of the students, parents and teachers. The interventions initiated need to be continuous throughout schooling and consistent across all settings. The challenge for educators is to help students with learning disabilities become self-advocates who are knowledgeable about themselves as learners and equipped to take responsibility for their own learning.

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|---------------------|--|
| Section ① | Discusses the domain model and its applications. |
| Section ② | Includes identification and program planning, addressing early identification, assessment, maximizing student success and long-range/transition planning. |
| Section ③ | Contains practical strategies within specific domains including metacognitive, information processing, communication, academic and social/adaptive. |
| Section ④ | Addresses other learning difficulties including attention-deficit/hyperactivity disorder and fetal alcohol syndrome/possible prenatal alcohol-related effects. |
| Sections ⑤—⑨ | Contain blackline masters, list of other teaching resources, an annotated test inventory and support network contacts. |

Throughout this document, the term "parents" also refers to students' custodians or legal guardians.

Section 1

Learning Disabilities: A Conceptual Model

The field of learning disabilities is strong, extensive and a vital force within education communities. It is established in research and educational practice and has grown rapidly since its inception in 1963 to become the largest field of special education. It is represented by major organizations and associations devoted to advocacy, professional development and discussion of research. The field has been influenced by social, political and educational pressures which play a positive role in ensuring that students receive the necessary supports and services.

The Definition

Many definitions were considered for use in this resource. The Learning Disabilities Association of Canada (LDAC)¹ adopted the following official definition of learning disabilities which is currently well-accepted:

"Learning disabilities is a generic term that refers to a heterogeneous group of disorders due to identifiable or inferred central nervous system dysfunction. Such disorders may be manifested by delays in early development and/or difficulties in any of the following areas: attention, memory, reasoning, coordination, communicating, reading, writing, spelling, calculation, social competence and emotional maturation.

Learning disabilities are intrinsic to the individual, and may affect learning and behaviour in any individual, including those with potentially average, or above average intelligence.

Learning disabilities are not due primarily to visual, hearing or motor handicaps; to mental retardation, emotional disturbance, or environmental disadvantage; although they may occur concurrently with any of these.

Learning disabilities may arise from genetic variations, biochemical factors, events in the pre- to perinatal period, or any other subsequent events resulting in neurological impairment."

¹ From the Learning Disabilities Association of Canada. Reprinted with permission.

In spite of the current recognition of the importance of the field of learning disabilities, its development has not been without controversy and major issues continue to be debated. The definition of learning disabilities is one area of controversy.

Most definitions of learning disabilities are broad because the term applies to a varied group of disorders. This complicates research requiring restrictive definitions. Research is ongoing to more precisely describe learning disabilities and this may have a significant impact on future understanding. However, changing definitions do not negate the reality of the problem condition.

The LDAC definition is representative of many conceptual definitions of learning disabilities which agree that the following five elements are important in defining learning disabilities:²

- underachievement as indicated by uneven patterns of development; e.g., well-developed oral language skills vs. poor written language skills, and/or by discrepancies between potential and academic achievement; e.g., average performance on a test of intelligence but significant delays in reading and/or mathematics.
- central nervous system dysfunction indicating that the source of the difficulties is found within the person and is not a consequence of outside factors. According to the LDAC definition: "... due to identifiable or inferred central nervous system dysfunction ... intrinsic to the individual ...".
- difficulties with one or more of the basic psychological processes, such as attention, memory, etc.
- specified areas of difficulty in which learning disabilities are often noticed. Common areas included are spoken language, academic and conceptual. Less frequently included are difficulties involving social skills, self-regulation, spatial orientation, integration or motor abilities. The LDAC definition specifies that the disorders are manifested in any of the following areas: "... attention, memory, reasoning, coordination, communicating, reading, writing, spelling, calculation, social competence and emotional maturation."

² From "On defining learning disabilities: an emerging consensus," by D. D. Hammill. Adapted and reprinted with permission.

- an exclusionary clause which reinforces that learning disabilities are different from other handicapping conditions and do not arise from them nor do they arise from environmental influences. Even though a learning disability may co-exist with other handicapping conditions (sensory impairment, cognitive delay, social and emotional disabilities) and environmental influences (cultural differences), it is not the result of those conditions or influences.

There is a high degree of overlap between learning disabilities and attention-deficit/hyperactivity disorder (AD/HD), but they are separate disorders. About 20 per cent of students with learning disabilities also have AD/HD (Silver, 1990, p. 1). About 30 to 50 per cent of students with AD/HD also have some form of learning disability (Barkley, 1994, p. 9). Refer to Section 4, page LD.216, for more information about attention-deficit/hyperactivity disorder. Learning disabilities also differ from fetal alcohol syndrome (FAS) and possible prenatal alcohol-related effects which are also discussed in Section 4, page LD.230.

A Caution About Labels

Labels are used to identify individuals as belonging to a particular classification or category based on their educational characteristics. They provide a framework to categorize knowledge and a common language for communication between school personnel and parents.

Labels can assist advocacy groups in raising the profile of a particular disability group by providing a focus for public attention. Raising the profile can influence social attitudes and political decisions. Labels have administrative purposes related to funding and the organization of resources. They can serve as a basis for research to advance understanding.

Labels do not describe an individual's particular strengths, needs or instructional requirements, or prescribe programming. They can, however, direct parents and educators to a body of knowledge which may provide a greater understanding of a student's needs and beneficial instructional practices.

There are also disadvantages to using labels and they must be considered carefully. Labels may result in stereotyping and stigmatizing and may negatively affect self-image. They may influence the expectations of parents and teachers and lead to overestimating or underestimating the capabilities of an individual. There is the potential for misdiagnosis resulting in inappropriate decisions for an individual student. Once applied, a label can be difficult to change or discard, even if it is no longer appropriate.

Careful monitoring of the use of labels is essential. It is important to remember that labels describe groups and not individuals. Instructional practices must go beyond the label to consideration of the individual's strengths, needs and the context of learning.

Domain Model

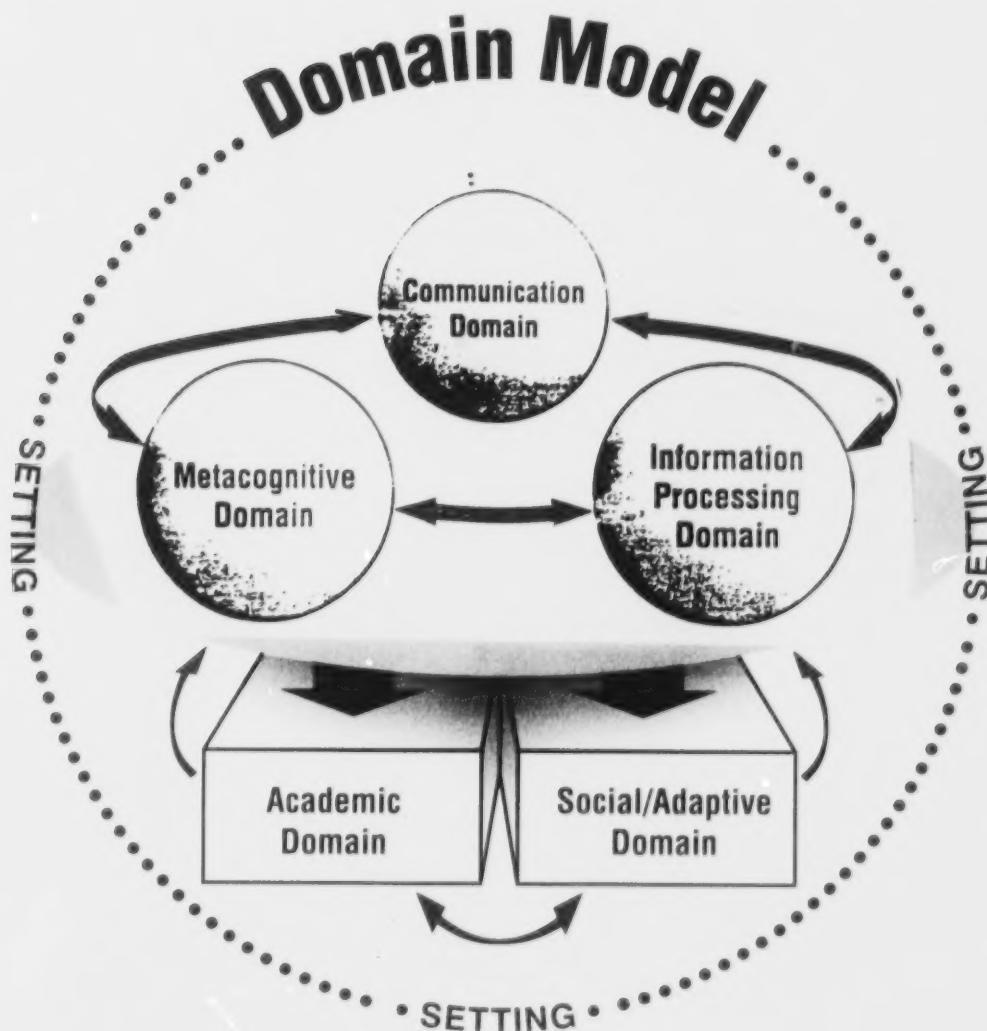
Teachers can clarify their understanding of a student's needs by organizing their observations of student characteristics into domains. The following domain model organizes student characteristics into interacting domains: metacognitive, information processing, communication, academic and social/adaptive. Difficulties in the first three domains may have an impact on the academic and/or social/adaptive domains. In turn, difficulties in these domains may affect each other as well as the metacognitive, information processing and communication domains.

The domain model draws teachers' attention to the many areas to consider when a student encounters difficulty learning. The model emphasizes the fact that students with learning disabilities have complex and varying needs that must be viewed in a multidimensional perspective. In this resource, the domain model is used to organize the characteristics frequently associated with learning disabilities and the strategies suggested for meeting diverse learning needs. These strategies are found in Section 3, page LD.91.

A domain model is limited, given that there are interactions and cross-influences, and that for each individual there is a unique combination of characteristics. Trying to divide and isolate domains is an arbitrary task. The metacognitive domain and information processing domain work together. The communication domain may be seen as a part of the information processing domain. The processes outlined in these domains come into action when students are engaging in academic tasks and are influenced by the nature of the task. These processes also influence social interaction and adaptive skills. Academic functioning, particularly academic failure, can influence social interactions and adaptive skills, particularly as it affects self-esteem and feelings of competence.

The model, however, can provide a useful framework to guide observations of students and instructional practices. For a particular student, the characteristics in the various domains should not be viewed as having equal weight, but as having both quantitative and qualitative differences reflecting the pattern of the student's unique and complex individual needs. Students with learning disabilities also show relative strengths and successful performance in one or more skill areas; e.g., excellent verbal communication skills (Shaw et al., 1995). Therefore, it is equally important to consider the pattern of strengths a student exhibits.

While the emphasis in a domain model is upon the functioning of a learner, the setting and outside influences of home, school and community surround the learner and the task. These influences can lessen the negative aspects of difficulties or they can contribute to the problems experienced. The domains in the model are embedded in the setting in recognition of the importance of these influences. Some instructional practices suggested later address changes in the task demands or in the setting to enhance learning.



Domains Overview

Metacognitive Domain

This domain involves the active control, coordination and monitoring of learning processes and strategies; e.g., problem solving, generalizing, studying and organizing. See pages LD.8–10.

Information Processing Domain

This domain includes how information is received through the senses, attended to, perceived, organized, stored (memory), retrieved and expressed (unobservable and observable responses). The metacognitive domain provides the active control of the processes in the information processing domain. See pages LD.11–15.

Communication Domain

This domain includes auditory skills, language skills (receptive and comprehension) and the output or expression of language. It is separated from the information processing domain because of the significant impact that difficulties in communication have upon academic and social/adaptive functioning. See pages LD.16–21.

Academic Domain

This domain includes the following areas: reading, written expression, spelling and mathematics. As students proceed through school, their learning disabilities may influence performance in content area subjects; e.g., science, social studies. See pages LD.22–25.

Social/Adaptive Domain

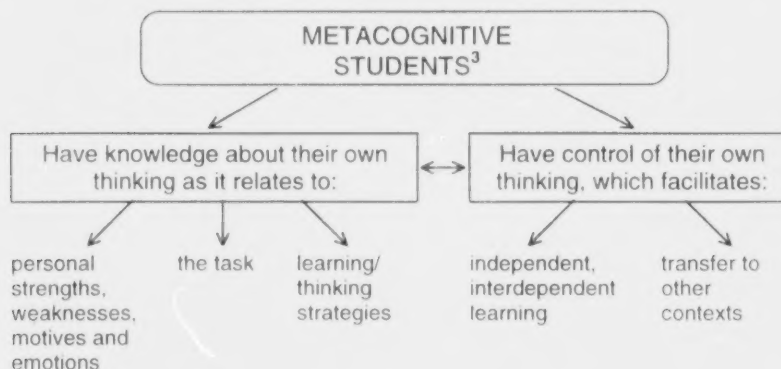
This domain encompasses social competence which involves the ability to engage successfully in interpersonal relationships and adapt to the environment. Social competence is influenced by affective characteristics which are included in this domain. Important concepts also include self-esteem, prosocial skills and self-monitoring. See pages LD.26–27.

Metacognitive Domain

Efficient learning involves the active control, coordination and monitoring of learning processes and strategies. Campione, Brown & Ferrara (1982, p. 436) state that:

- metacognition is knowledge about oneself as a learner, knowledge about the task, and knowledge about the skills and strategies needed to perform the task
- executive control is the process of selecting, monitoring and overseeing the effectiveness of learning based on feedback, and regulating learning by activating appropriate strategies.

In simplest terms, metacognition is thinking about your thinking! It serves the function of quality control. Metacognition is involved in the decisions learners make, such as what to attend to, what is already known that might apply in a new situation, what memory strategy might be appropriate to organize, store and retrieve the new information and whether the first plan is working effectively; e.g., Do we need to change plans? Is it a good idea? Is it working?



Problems with metacognition may be indicated when students have difficulty:

- defining problems
- sorting relevant from irrelevant information
- generating alternative approaches to problem solving
- changing approaches when one doesn't work
- actively using strategies
- drawing on past knowledge and experience to solve new tasks (generalizing)
- making predictions
- self-monitoring
- organizing thoughts and ideas
- being flexible in approaching problems
- planning
- systematically following through in executing plans
- evaluating performance.



³ From *Teaching thinking: enhancing learning: a resource book for schools: ECS-grade 12*, by Alberta Education. Reprinted with permission.

Generalization and Transfer

Metacognitive functioning involves coordinating the processes and strategies involved in learning. An important aspect of this coordination is the activation of processes to maximize generalization. Generalization involves recognizing that a strategy, information or behaviour found useful in a familiar situation can be applied to a new situation. Transfer involves modifying the original strategy, information or behaviour to fit a new situation. As this transfer becomes more automatic, a student has greater capacity for higher-level thinking.

Problems with generalization and transfer may be indicated when students have difficulty:

- applying previously learned information to new situations — generalizing and building bridges between past and present learning
- developing an adequate degree of original learning
- identifying the critical and relevant features of a situation
- identifying similarities among environments, actions and feelings
- associating between two learnings.



Study and Organizational Skills

Study skills involve strategies that maximize the efficiency of the efforts students invest in their learning. Efficient learning is enhanced by the ability to organize materials and information, and accomplish tasks systematically.

Acquiring study and organizational skills is important for all students. These skills are, however, essential for students with learning disabilities in order to help maximize transference of learning and enhance ongoing success throughout their schooling. A student's ability to organize information into meaningful segments enhances understanding, memorization, recall and generalization.

Problems with study and organizational skills may be indicated when students have difficulty:

- following directions
- developing efficient reading, viewing, listening skills
- attending, completing tasks
- organizing materials and study environment
- setting goals
- prioritizing
- judging and managing time
- planning and scheduling
- taking notes
- identifying main ideas, summarizing
- categorizing, comparing, contrasting
- outlining



- developing library, research skills
- using memory techniques
- using studying techniques
- using strategies for test-taking
- with test anxiety.

See Section 3, page LD.101, for suggested classroom strategies in the metacognitive domain.

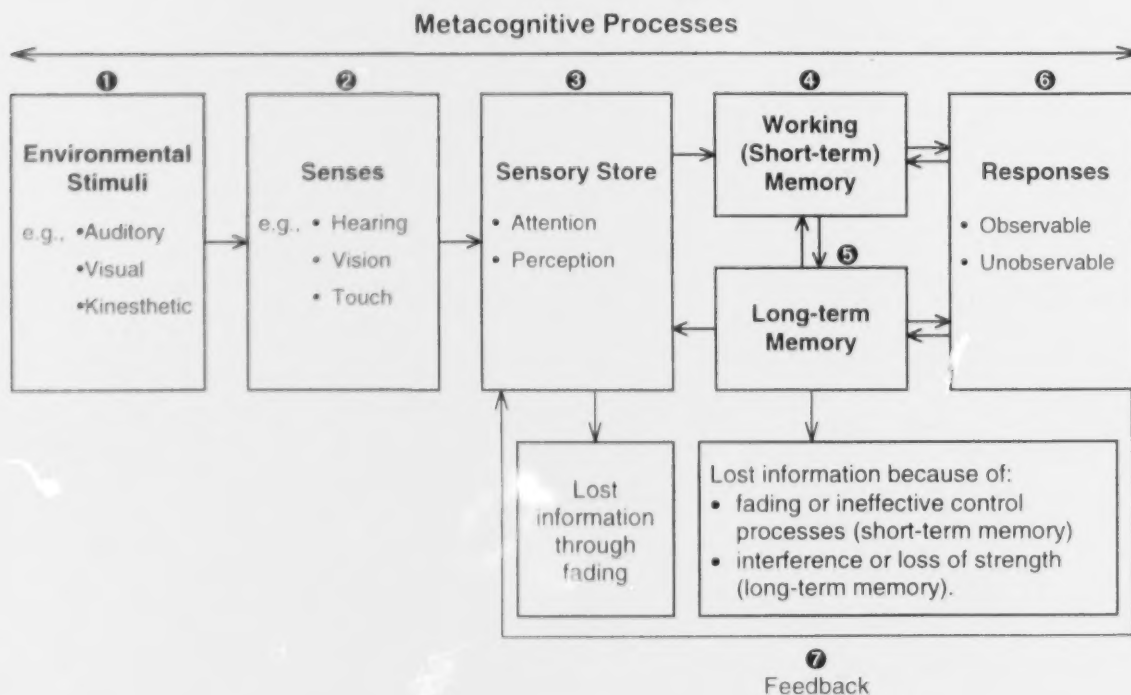
Information Processing Domain

The model below illustrates how learners process information:

- ① information from the environment
- ② is taken in through the senses
- ③ is attended to, made sense of and related to prior knowledge (sensory store)
- ④ is reduced or elaborated on in working (short-term) memory
- ⑤ is organized and stored in a meaningful way for retrieval and future use (long-term memory).
- ⑥ Then, a variety of responses indicates how the individual has processed information; i.e., what has been learned. Responses may be observable (speech or motor output) or unobservable (thinking to oneself).
- ⑦ Feedback is received and analyzed, and influences further processing.

Attention, perception and memory include skills and strategies which are directed by metacognitive processes. A person's functioning in the metacognitive domain has a direct impact on the efficiency of functioning in the information processing domain. Functioning is also influenced by prior experiences and knowledge, developmental characteristics, affective and motivational factors.

Information Processing Domain



Sensory Store

Attention

Attention involves both conscious and unconscious screening processes. Initially, at an unconscious level, sensory distractions are usually shut out. Then, a conscious effort is involved in deciding whether to attend to or ignore information. This aspect of screening is influenced by such factors as interest or motivation. Motivation involves the ability to concentrate and sustain attention. Difficulty with motivation in this sense cannot be equated with laziness. Some students have difficulty shutting out extraneous distractions. Some have difficulty selecting important or relevant information. Students cannot process all the information coming at them; without a selection process, overload would occur.

Everyone experiences difficulty with selective attention and sustaining attention at times. When attention wanes, learning or performance are adversely affected. There are many reasons for difficulties with attention, including auditory processing and language comprehension difficulties. If severe attention difficulties are persistent, pervasive and significantly interfere with a student's classroom performance, the possibility of attention-deficit/hyperactivity disorder (AD/HD) should be considered. See Section 4, page LD.216 for more on AD/HD.



Problems with attention may be indicated when students:

- appear not to be listening
- miss instructions
- have difficulty sorting relevant from irrelevant information
- have short attention spans unless interested in tasks
- have difficulty starting tasks
- have difficulty staying on task
- have difficulty completing tasks
- appear to be daydreaming
- perform inconsistently
- are easily distracted
- make careless mistakes
- have difficulty organizing materials, tasks, activities, time.

Perception

Perception involves giving meaning to information received through the senses (auditory, visual, kinesthetic). The features of incoming information are analyzed and related to the context and prior knowledge. Perception involves recognizing, discriminating, interpreting and attaching meaning to information received through the senses.

Auditory perception difficulties are included in the list on page LD.17.

Visual perception is the ability to take in, interpret and organize information through the sense of sight.



Problems with visual perception may be indicated when students:

- have difficulty recognizing, discriminating (same/different) and matching shapes, numbers, letters and words; e.g., 6/9, 13/31, b/d, p/q, saw/was
- miss visual details
- have directional difficulties; e.g., right/left, up/down
- have difficulty tracking lines of print, seeing letters in proper sequence
- have difficulty interpreting maps, reading globes, understanding floor plans, etc.
- appear cluttered and disorganized
- have difficulty interpreting facial expressions, body language, personal space.

Memory

Organizing, Storing and Retrieving Information

Once information has been received through the senses, attended to and perceived, it can be held for a short time in working (short-term) memory and then placed in long-term memory. Information is held briefly and lost, or kept active in working memory through the use of strategies, such as rehearsing, chunking or elaborating. The information is examined for relevance and some is selected for further processing. Information may then be placed in long-term memory for permanent storage.

The active processing used to organize the new information, relate it to existing networks of information and store it in a meaningful way has implications for how easily the learner will be able to retrieve the information for future use. Difficulty with any or all of the processes involved in memory will affect learning.



Problems with memory may be indicated when students:

- don't remember concepts or information from one day to the next
- can't recall what was just seen, heard or read
- make the same errors repeatedly
- have difficulty retrieving information previously learned
- don't use strategies; e.g., rehearsal
- have difficulty recalling information by rote; e.g., rhymes, mathematics facts, days of the week
- have difficulty following directions.

Responses

Learners demonstrate their learning and the ways they have processed information through responses which may be observable (speech or motor output) or unobservable (thinking to oneself). Observable responses related to speech are found in the Communication Domain. Observable responses related to motor output follow.

Observable (Motor Output)

There are many interconnections and feedback loops in the information processing system and it is often difficult to identify which aspects of the system are the source of observed output difficulties.

Visual-motor integration is the ability to perceive visual information and combine it with motoric responses.

Fine motor integration is the ability to use the small muscles in the fingers, hands and wrists in a coordinated manner. Fine motor skills allow students to grasp and manipulate small objects and control tools (pencil, scissors, etc.) skillfully.

Gross motor integration is the ability to use the large muscles of the body for movement and stability. Gross motor skills allow students to run, jump, throw, catch, skip, participate in active games or maintain postural control when sitting in their desks.

Problems with visual motor, fine motor and gross motor skills may be indicated when students:

- have difficulty copying figures, words, letters, numbers
- have difficulty transferring writing from books, blackboards, overheads, etc. to paper (often vertical to horizontal plane)
- have difficulty organizing work on paper: columns, paragraphs, spacing, lines, etc.
- have directional difficulties; e.g., right/left, up/down
- have difficulty with pencil activities
- have difficulty with scissors control
- have difficulty doing up fasteners
- have difficulty tying shoes
- have difficulty manipulating and arranging objects; e.g., counting chips, puzzles, blocks
- have difficulty opening combination locks
- get lost going from room to room
- have a poor sense of direction
- fall out of their seats
- bump into, drop or trip over things
- appear cluttered and disorganized
- have problems running, walking, skipping, throwing, balancing
- are generally awkward, clumsy, have poor motor coordination.



See Section 3, pages LD.125–145, for suggested classroom strategies for information processing.

Communication Domain

Communication involves the input of ideas or information, the processing and thinking about this information and then the output or exchange of thoughts through talking, writing, picture symbols or gestures/sign language. Communication problems cross all domains and may affect social, emotional, intellectual and academic growth. For example, students with communication problems may have limited play skills and may be rejected by other students. They may not be able to express their feelings and be frustrated. Students who have difficulty expressing ideas through speaking and/or writing may not be able to demonstrate their knowledge. Their potential may be underestimated and academic progress inhibited. Limited ability to process the language received restricts the development of a knowledge base and conceptual framework for processing new information.

Communication problems may be related to the exchange of ideas through nonverbal channels, for example, picture symbols, gestures or mathematical symbol systems. Communication problems related to oral language processing are considered in detail in this section in order to provide an understanding of the impact that communication has on students with learning disabilities. Five to 10 per cent of school-aged children have communication problems (Warr-Leeper, 1993). The most significant areas of weakness include articulation and language skills.

There are many children beyond this five to 10 per cent whose speech and language displays errors which are called "developmental" because the errors are part of the normal process of oral communication development and may not be considered problematic unless they persist or significantly interfere with learning. It is important to consult with qualified speech-language pathologists if there are concerns with language, auditory skills, articulation or fluency.

Language Processing

Language is a symbol system used by individuals of the same culture to exchange ideas, information and emotions. It consists of comprehension (the ability to understand the symbol system) and expression (the ability to use the symbol system).

Language processing has been separated from the information processing domain because it is complex and a significant area of difficulty for students with learning disabilities. Important concepts related to input, comprehension and output in language processing are defined on the following pages.

Auditory Skills

Auditory skills are the skills that encompass the perception and processing of auditory information. These include hearing, listening, discrimination, auditory memory and auditory processing skills.

Hearing is the physical ability to hear at normal loudness levels. It is extremely important to refer students for hearing screening if there are concerns in this area. A large number of early elementary students have inconsistent hearing loss due to middle ear pathology (may have perfectly normal hearing one day and a loss the next). This can have a significant impact on any of the auditory components.

Listening involves the ability to attend to important auditory information.

Discrimination is hearing the differences between sounds; e.g., a dog barking/a cat meowing. Identifying the differences between two speech sounds is a higher level discrimination skill; e.g., hat/fat, leaf/leave.

Auditory memory is the ability to remember what is heard. This can include meaningful sentences or details in orally presented material or even letter sounds in spelling.

Processing is understanding what is heard by interpreting and organizing auditory information.

Problems with hearing, listening, discrimination, auditory perception, memory or processing may be indicated when students:



- habitually speak too loudly or too softly
- appear confused and copy from classmates
- turn one side of their head toward the speaker
- frequently request repetition
- appear irritable, stubborn or uncooperative
- withdraw or daydream
- are easily distracted and unable to listen to what is being said
- fatigue easily
- tune out what does not interest them
- have difficulty maintaining eye contact with the speaker
- interrupt or speak out at inappropriate times
- are too attentive when oral directions are given (strain to "see" what is being said)
- have difficulty discriminating between sounds; i.e., difficulty hearing the similarities and differences between sounds and identifying differences between sounds; e.g., t/f, m/n, leave/leaf
- have difficulty with phonemic awareness (hearing and manipulating individual sounds in words)
- have difficulty rhyming
- have difficulty blending sounds
- have difficulty sounding out words and confuse sounds
- have difficulty remembering and repeating information presented orally
- forget all or part of instructions given

- have difficulty carrying out oral directions
- are frequently accused of not paying attention
- have difficulty repeating long sentences or questions
- make errors repeating, leave out information, mix up the order of the information or are simply unable to figure out where to start
- have difficulty remembering short sentences, songs or important details in stories
- are unable to use strategies to remember; e.g., rehearsal.

Language Skills

Syntax is the order words are put in a sentence to convey meaning. This includes skills in formulating simple, compound or complex sentences and in formulating questions using parts of speech; e.g., adjectives, adverbs, articles, auxiliaries, conjunctions. Problems may occur in understanding (receptive) and/or using (expressive) syntax.

Vocabulary is the knowledge of words and word meanings. This includes labelling, basic concepts, synonyms, antonyms and multiple-meaning words. Problems may occur in receptive and/or expressive vocabulary. For example, the average seven- to eight-year-old child is expected to have an expressive vocabulary of 3500–5500 words and a receptive vocabulary of approximately 26 000 words. The average seven- to eight-year-old child is expected to comprehend and use syntactically, semantically and pragmatically correct language.

Semantics is the aspect of language concerned with meaning and language use. This includes skills in comparing, contrasting, describing, categorizing, sequencing, predicting, reasoning, using figurative language, following directions and inferencing. Again difficulties may relate to comprehension (receptive) or use (expressive).

Pragmatics is the social use of language. The close link between language and social interaction is evident in this area of language processing. The interaction with other domains is also evident. Metacognition is involved in effective interpersonal communication which goes beyond knowing what to say, but also when and how to say it, and when to change plans (self-monitoring). Information processing is involved in processing aspects of non-verbal communication; e.g., facial expressions, gestures.



Pragmatic skills include:

- topicalization: introducing, maintaining and terminating a topic
- conversation: speaking and listening, including taking turns and changing the topic appropriately
- manner of presentation: use of formal or informal language, tone of voice
- use of syntactic forms to convey pragmatic information
- affective language: the message conveys what it is meant to
- non-verbal communication: facial expressions and gestures.

Problems with receptive and expressive syntax, vocabulary, semantics and pragmatics may be indicated when students:

- have difficulty understanding explanations
- have difficulty breaking down complex sentence forms to analyze meaning
- have difficulty understanding idioms and figurative language; e.g., You're pulling my leg.
- need frequent rephrasing of questions or instructions
- give inappropriate or irrelevant answers to questions
- pause a long time before responding to questions or requests
- use brief phrases or sentences and generally don't string these together
- have difficulty formulating questions
- have difficulty using parts of speech; e.g., adjectives, adverbs, articles, auxiliaries, conjunctions
- are far less descriptive than others their age
- mix tenses (past, present, future)
- use "telegraphic" speech omitting connecting words
- have limited use of compound and complex sentence structures
- use only the regular form of plurals, verbs and adjectives; e.g., sheeps/sheep, gots/have, worsen/worst
- have problems explaining things clearly
- have a limited expressive vocabulary
- make simple, generally concrete statements
- occasionally produce novel words or phrases (odd or original vocabulary); e.g., "rememberberry" for "memory," and usually do not recognize an error was made
- have word-finding difficulties characterized by the following:
 - show excessive use of "filler" words and phrases
 - frequently say, "I know it, I just can't think of the word"
 - state object's function or description rather than its label; e.g., "the thing you put food in" for "refrigerator"
 - are not talkative.

Articulation Skills

Articulation skills refer to the formation of the speech sounds of a language. Expressive language difficulties go beyond the clarity of speech production (articulation) and are related to difficulties with vocabulary, syntax, semantics and pragmatics. Effective communication may be interrupted if students have difficulty with speech output because they are not able to send clear messages that can be understood by others.



Problems with articulation may be indicated when students:

- are difficult to understand
- distort sounds: don't substitute a completely different sound for another, but the sound production is not quite right
- substitute sounds; e.g., tat for cat
- omit sounds; e.g., ba for bat or bue for blue
- add an extra sound to the word; e.g., stoap for soap
- make oral movement errors resulting in "slushy" speech
- confuse the sequence of sounds in words; e.g., psghetti for spaghetti.

Phonology Problems

Certain rules about how sounds are produced may be absent or learned incorrectly. In the following chart, "error" means that the student needs assistance. If the speech sound is not expected to be correct at a certain age, then it cannot be said to be "in error." It just has not yet developed.

Articulation Guidelines ⁴		
As a general guideline, children are expected to produce the following sounds correctly at these ages:		Most common error sounds at these ages:
By age 3 years	p, b, m, w, h	
By age 4 years	n, t, d, k, g, ng	k, g
By age 5 years	f, y, sh, ch	sh, ch, k, g, f
By age 5 years, 6 months	l, j, v	l, sh, ch, j
By age 6 years	s, z, th and blends; e.g., sm, gl, bl, ps	s, l and blends
By age 6 years, 6 months	r	s, r

⁴ Adapted by speech-language pathologists, Elk Island Public Schools, from "When are speech sounds learned?" by E. K. Sander. Reprinted by permission of the American Speech-Language-Hearing Association.

Fluency Skills

Fluency is generally smooth and flowing speech. Normal fluency may include word and phrase repetitions, some hesitations and rephrasing. Speech becomes dysfluent when the flow of speech is disrupted. Dysfluency, or "stuttering," interferes with communication.



Problems with fluency may be indicated when students:

- have irregular tempo and rapid repetitions
- have prolongations of sounds, words
- make changes in pitch and vocal tension
- have blockages or complete cessation of speech
- have tension and movement of face or body
- experience fear and embarrassment leading to speech avoidance
- experience increased stress and therefore increased dysfluencies in different situations; e.g., talking to the class, waiting for turn to answer questions, being put on the spot.

See Section 3, pages LD.146–150, for suggested classroom strategies in the communication domain.

Academic Domain

Difficulties with metacognition, information processing and/or communication are likely to affect academic functioning; i.e., reading, spelling, written expression and/or mathematics.

Lack of success in academic areas also affects functioning in the social/adaptive domain. For example, students who experience reading difficulties may view themselves negatively and may develop an attitude of "learned helplessness" toward reading, that is, a belief that they are unable to influence outcomes. This attitude may interfere with progress in reading because the student gives up trying and avoids engaging in reading activities.

Difficulties in the academic domain are important in operational definitions of learning disabilities. One aspect of many approaches to operationalizing a definition of learning disabilities involves identifying a discrepancy between learning potential and academic performance. There is often a discrepancy in levels of performance across academic areas; e.g., difficulty in reading but success in mathematics.

Reading

Reading is an active search for meaning. It involves the active use of thinking strategies to construct meaning from text. Three types of knowledge are available to the reader in connected text:

- grapho-phonemic knowledge: the relationship between the written symbols of language and the sound system of language
- syntactic knowledge: the grammar of language
- semantic knowledge: concepts and relationships among concepts.

Reading is a language activity which can be greatly impacted by difficulties described in the communication domain. For example, difficulties in word retrieval can interfere with word recognition. Difficulty with syntactic development limits the ability to use grammatical patterns to make predictions in reading. Poor reading comprehension may be related to semantic difficulties.

As a complex strategic activity, reading is affected by difficulties in the metacognitive domain. Often, poor readers rely on one source of knowledge in reading, for example, an over-reliance on "sounding out." Efficient reading requires the coordination of several strategies and ongoing monitoring for meaning.

Difficulties in the information processing domain may also affect reading. Auditory perception and visual perception are important to the processing of grapho-phonemic information; e.g., letter and word reversals, confusing sounds and poor blending of sounds. Phonemic awareness is particularly important during the early stages of reading. Memory and sequencing difficulties may influence word recognition and comprehension.

Reading problems manifest themselves in three areas: word recognition, fluency and expression, and comprehension skills.

Problems with word recognition may be indicated when students have difficulty:



- identifying letters or letter sounds
- analyzing phonemes (breaking words into phonemes or speech sounds)
- blending (putting the sounds or phonemes together to form words)
- segmenting (dividing words into syllables and phonemes)
- developing sight vocabularies
- using strategies to identify words; i.e., visual configuration, picture clues, semantic clues, syntactic clues, structural analysis, phonic analysis and syllabication.

Problems with fluency and expression may be indicated when students:



- have choppy, disconnected reading
- are slow readers, attending mainly to the identification of the words in print
- have little or no intonation or voice inflection.

Problems with comprehension may be indicated when students have difficulty:



- visualizing what is read
- deriving the main idea from a text
- summarizing information
- recalling details
- inferencing from the text
- defining and/or applying vocabulary
- seeing cause-and-effect relationships
- sequencing
- drawing conclusions
- applying information
- making predictions about possible outcomes
- focusing attention on comprehension because of the effort required to decode
- comprehending "referential language"; i.e., who does "they" refer to in a story?
- monitoring for meaning
- using background knowledge appropriately (underuse or overuse it).

Written Expression

The writing process includes several elements: prewriting, composing, revising, editing and publishing. The metacognitive domain is important in the active use of strategies in all stages of the writing process. Written expression involves language and is affected by difficulties in the communication domain. Information processing difficulties may also be manifested in difficulties in written expression. For example, difficulties in the physical act of handwriting (manuscript or cursive) may reflect visual processing difficulties and/or fine motor difficulties and/or difficulties integrating visual and motor processing.



Problems with written expression may be indicated when students:

- lack knowledge of effective strategies, such as pre-writing strategies; e.g., no plan, no knowledge of written language structures (sentences, paragraphs), lack post-writing strategies (reading own work aloud to find out if it makes sense, editing)
- have difficulty thinking of ideas, selecting a topic
- have difficulty expressing ideas/experiences
- have problems sequencing ideas or maintaining focus
- depend on external cues, such as how much to write, teacher feedback
- have difficulty organizing ideas
- have slow, laborious handwriting (manuscript or cursive)
- have illegible script (poor letter formation, poor spacing).

Spelling

Spelling is important to written expression at the editing stage and influences the writer's ability to communicate his or her message. The majority of students with learning disabilities have spelling difficulties, but spelling is often difficult for other students as well (Johnson & Myklebust, 1967, p. 239; Bos & Vaughn, 1994, p. 236). Efficient spelling relies on metacognitive, information processing and communication domains.



Problems with spelling may be indicated when students:

- have difficulty memorizing the full spelling of words
- are unable to analyze spoken words into their separate sounds
- have problems representing separate sounds with letters
- use ineffective strategies for recalling letter sequence where phonetic spelling doesn't work
- lack specific strategies to improve performance; e.g., mnemonics
- have little or no understanding of spelling rules
- use incorrect letters due to student mispronunciation
- have difficulty recognizing and identifying vowel sounds
- have little or no understanding of morphographs; e.g., root words, endings that convey meaning such as plurals or tense, prefixes that convey meaning such as "pre" or "re."

Mathematics

Some students with learning disabilities do not experience difficulty with language arts, but struggle in mathematics. Others have no difficulty in mathematics, while others experience difficulty with both areas. Processes in the information processing domain, such as perception and memory, affect performance in mathematics. For example, difficulty with spatial relationships interferes with measurement, geometry and perhaps organizing or dealing with computations on a page. Memory affects learning mathematical facts and recalling the sequence of steps in computations. Metacognitive factors are particularly important in mathematics problem solving and in selecting and shifting strategies in computations. Language difficulties may affect the understanding of mathematical concepts and language, such as first, greater than, etc. Difficulties in reading can have an impact on solving word problems. Social-emotional factors can influence attitudes, persistence and self-concept which, in turn, could affect performance in mathematics.

Problems with mathematics may be indicated when students have difficulty:



- keeping their place as they perform a series of steps in a computation
- differentiating between numbers (13/31), symbols ($</>$) and clock hands
- completing all questions without skipping any
- copying numbers accurately from a book or the blackboard
- sequencing numbers and steps
- with one-to-one correspondence
- with directional aspects (aligning, regrouping)
- grouping manipulatives in sets/patterns/sequences
- using a number line
- with oral mathematics exercises
- counting on from within a sequence
- hearing number patterns
- writing numbers and symbols appropriately and in proportion
- retaining newly acquired information
- retaining steps, procedures and meanings of words
- mastering basic facts/formulae/algorithms
- with problem solving involving steps
- verbalizing steps in solving word problems or equations
- relating mathematical terms to meaning; e.g., intersection of two streets and the intersection of two lines
- transferring information/knowledge to help solve similar problems/operations or to similar situations; e.g., using knowledge of doubles, $6 + 6 = 12$ to solve $6 + 7 = 13$
- understanding place value
- understanding concepts, leading to rote memorization
- following models.

See Section 3, page LD.151, for suggested classroom strategies in the academic domain.

Social/Adaptive Domain

Socially competent individuals know how to select appropriate behaviours in social situations so that they receive positive social responses from others. They are able to adapt and respond to the expectations and behaviours of others in any given situation. They are able to self-monitor and exercise self-control. Communication skills are essential to social competence. The social use of language (pragmatics) was described on page LD.18. Social problem solving requires metacognitive control to define a social situation, control impulses and emotions, and choose an appropriate course of action. Perceptual difficulties may limit the ability to read cues in social situations; e.g., facial expression, body language. Attention difficulties and poor impulse control may interfere with appropriate social interactions. Difficulties in all of the domains described earlier may have a negative impact on social competence.

Social Competence

Social and Affective Skills

Social competence is also closely tied to affective development. How students view or perceive themselves (self-concept) will influence how they respond to others. A positive self-concept contributes to ongoing successful interpersonal relationships. Another factor that can influence social competence is "locus of control." This refers to individuals' beliefs about the degree to which they are in control of their actions. According to McLeod,⁵ students with an "internal" locus of control attribute their successes and failures to factors within their control, such as effort (I studied hard), or competence (I'm quite good at remembering charts). Students with learning disabilities may have an "external" locus of control and may attribute outcomes and/or successes to factors outside their own influence; e.g., luck. In many situations, including social ones, they may not be motivated to change because they do not perceive that successful interactions are influenced by their behaviour (She only spoke to me because I was by the water fountain). This is also true of students who experience repeated failures in social and/or academic situations. They may develop learned helplessness because they believe that they are unable to influence outcomes and give up trying (Slavin, 1994, p. 361; Seligman, 1975).

Problems with social competence may be indicated when students:

- are not accepted by their peers
- have trouble initiating and maintaining friendships
- submit to peer pressure
- are not able to distinguish the significance of tone, pitch, volume and/or tempo of voice in reading



⁵ From "Social/behavioral characteristics," by T. M. McLeod in W. N. Bender's *Learning disabilities: best practices for professionals*. Adapted and reprinted with permission.

- do not know when to listen and when to talk
- do not understand the social implications of certain behaviours (cause/effect)
- assume little responsibility for their actions
- seek the company of adults vs. peers
- have trouble controlling impulses
- have trouble controlling emotions; e.g., anxiety, anger, etc.
- have limited self-esteem, confidence
- avoid risk taking
- have difficulty reading non-verbal social cues; e.g., facial expressions, body stance, gestures
- have problems maintaining or using appropriate eye contact
- do not express feelings appropriately and adequately
- do not understand and recognize the feelings of others
- are either too passive or aggressive
- appear unmotivated
- may not see a sense of purpose in what is being done
- have difficulty with social problem solving; e.g., What are my choices in dealing with this situation?
- have trouble analyzing the sensitivity or degree of formality in different situations and adjusting language to different people and situations (Kirk & Chalfant, 1984, p. 164)
- are insensitive to body space and others' personal boundaries (excessive touching, staring, eavesdropping, etc.)
- are unable to apply learned social skills to real-life situations
- do not adapt to classroom routines, rules, expectations and a variety of teachers and teaching styles.

See Section 3, page LD.200, for suggested classroom strategies in the social/adaptive domain.

Observing Students: Domain Model Checklist

The purpose of this checklist is to help teachers get to know their students and to organize their observations of students encountering learning difficulties. It is an organizational checklist to help point to strategies. It is not designed to provide a score or to assist in the diagnosis of learning disabilities. Teachers may choose to use only certain sections, depending on the individual needs of students.

Mark the items which best describe the student, analyze the results to determine a pattern of need and choose appropriate strategies from Section 3, page LD.91. These descriptions of the student's needs may also assist in communicating with parents. Needs identified may indicate areas where further consultation or referral may be appropriate. See Section 2, Setting Up a Student Support Team, page LD.49.

Student's Name: _____

Date: _____

Observers' Name(s): _____

METACOGNITIVE DOMAIN	ALWAYS	SOMETIMES	NEVER	N/A
does not learn from experiences and/or interpret experiences appropriately	☐	☐	☐	☐
makes the same errors over and over again and does not seem to learn from practice	☐	☐	☐	☐
is a weak problem solver	☐	☐	☐	☐
has difficulty defining the problem	☐	☐	☐	☐
has difficulty comprehending there is a problem	☐	☐	☐	☐
has difficulty discriminating between essential and unessential details	☐	☐	☐	☐
misses significant information from instructions, reading material, presentations	☐	☐	☐	☐
has difficulty choosing an appropriate plan for problem resolution	☐	☐	☐	☐
has difficulty approaching tasks in a logical sequence	☐	☐	☐	☐
misinterprets experiences; may arrive at the correct answer, however, uses an ineffective or inefficient way to get there	☐	☐	☐	☐
may appear rigid in approach to tasks	☐	☐	☐	☐
is disorganized (notes, messy desk, messy belongings, weak editing and self-monitoring skills)	☐	☐	☐	☐
doesn't see the relevance of organization	☐	☐	☐	☐

METACOGNITIVE DOMAIN (cont'd)	ALWAYS	SOMETIMES	NEVER	N/A
is not prepared for class				
arrives late	☐	☐	☐	☐
loses things (belongings, assignments)	☐	☐	☐	☐
has difficulty prioritizing events, learning experiences	☐	☐	☐	☐
has difficulty with advance planning for assignments or studying	☐	☐	☐	☐
leaves assignments until the last minute	☐	☐	☐	☐
performs poorly on timed tests or assignments	☐	☐	☐	☐
has difficulty judging time spans (after recess, a few minutes before lunch time)	☐	☐	☐	☐
is impulsive on timed tests; e.g., doesn't see the operation sign when doing timed mathematics quizzes	☐	☐	☐	☐
has difficulty seeing relevance of correcting errors	☐	☐	☐	☐
does not know when a task is complete/incomplete	☐	☐	☐	☐
has difficulty with inferential thinking	☐	☐	☐	☐
has difficulty seeing relationships between similar concepts; classification exercises are difficult	☐	☐	☐	☐
has difficulty with study skills; e.g., note-taking, memory techniques, test-taking	☐	☐	☐	☐
has difficulty weighting value on test questions and making necessary adaptations; e.g., may spend half an hour on a question worth two points vs. a question worth 15 points	☐	☐	☐	☐

Notes:

INFORMATION PROCESSING DOMAIN — Attention	ALWAYS	SOMETIMES	NEVER	N/A
appears not to be listening	☐	☐	☐	☐
misses instructions	☐	☐	☐	☐
missequences directions	☐	☐	☐	☐
has difficulty selecting the relevant stimulus; e.g., what is important vs. what is not important	☐	☐	☐	☐
has a short attention span unless interested in a task	☐	☐	☐	☐
has difficulty starting tasks	☐	☐	☐	☐
has difficulty staying on task (with comments, assignments, etc.)	☐	☐	☐	☐
has difficulty completing tasks	☐	☐	☐	☐
begins assignments before instructions are given	☐	☐	☐	☐
is slow to complete assignments and/or rushes through them	☐	☐	☐	☐
appears to be daydreaming	☐	☐	☐	☐
is unaware that he or she is not paying attention	☐	☐	☐	☐
performs inconsistently	☐	☐	☐	☐
is easily distracted	☐	☐	☐	☐
attends to other stimuli around the classroom	☐	☐	☐	☐
makes careless mistakes	☐	☐	☐	☐
has difficulty organizing materials, tasks, activities, time	☐	☐	☐	☐
has slow responses, seems to take an inordinate amount of time to think about an answer	☐	☐	☐	☐
requires demonstration to complete task	☐	☐	☐	☐
does not see a main theme in a picture (often picks out the fringe or minute details)	☐	☐	☐	☐

INFORMATION PROCESSING DOMAIN — Memory	ALWAYS	SOMETIMES	NEVER	N/A
doesn't remember concepts or information from one day to the next	☐	☐	☐	☐
is unable to recall what was just seen, heard or read	☐	☐	☐	☐
makes the same error repeatedly	☐	☐	☐	☐
has difficulty retrieving information previously learned	☐	☐	☐	☐
doesn't use strategies; e.g., rehearsal	☐	☐	☐	☐
has difficulty recalling information by rote; e.g., rhymes, mathematical facts, days of the week	☐	☐	☐	☐
has difficulty following directions	☐	☐	☐	☐
has difficulty memorizing poems, songs, passages	☐	☐	☐	☐
remembers things from long ago but not recent events	☐	☐	☐	☐

INFORMATION PROCESSING DOMAIN — Visual Perception	ALWAYS	SOMETIMES	NEVER	N/A
has difficulty recognizing, discriminating (same/different) and matching shapes, numbers, letters and words; e.g., 6/9, 13/31, b/d, p/q, saw/was	☐	☐	☐	☐
misses visual details	☐	☐	☐	☐
has directional difficulties; e.g., right/left, up/down	☐	☐	☐	☐
has difficulty tracking lines of print, seeing letters in proper sequence	☐	☐	☐	☐
has difficulty interpreting maps, reading globes, understanding floor plans, etc.	☐	☐	☐	☐
appears cluttered and disorganized	☐	☐	☐	☐
has difficulty interpreting facial expressions, body language, personal space	☐	☐	☐	☐
reverses or inverts letters or words; e.g., b/d, u/n, was/saw in reading or writing (more significant if after Grade 3)	☐	☐	☐	☐
rubs eyes, closes one eye or complains about eyes	☐	☐	☐	☐
loses place/omits or rereads words, phrases or lines of print	☐	☐	☐	☐
turns book or head at odd angles when reading or writing	☐	☐	☐	☐

INFORMATION PROCESSING DOMAIN — Visual Motor, Fine Motor, Gross Motor Skills (Output)	ALWAYS	SOMETIMES	NEVER	N/A
has difficulty copying figures, words, letters, numbers; makes reversals (b/d, p/q, saw/was); transposes (mixes sequence; e.g., private for private), inverts (b/g, w/m, n/u)	☐	☐	☐	☐
has difficulty transferring writing from books, blackboards, overheads, etc. to paper (often vertical to horizontal plane)	☐	☐	☐	☐
has difficulty with scissors control	☐	☐	☐	☐
has difficulty doing up fasteners	☐	☐	☐	☐
has difficulty tying shoes	☐	☐	☐	☐
has difficulty manipulating and arranging objects; e.g., counting chips, puzzles, blocks	☐	☐	☐	☐
has difficulty opening combination locks	☐	☐	☐	☐
gets lost going from room to room	☐	☐	☐	☐
has a poor sense of direction	☐	☐	☐	☐
has difficulty with pencil activities	☐	☐	☐	☐
holds pen or pencil tightly/awkwardly	☐	☐	☐	☐
has awkward body posture when writing/copying	☐	☐	☐	☐
has difficulty establishing a starting point when copying	☐	☐	☐	☐
pencil seems to slide off the page	☐	☐	☐	☐
makes unusual letter formations	☐	☐	☐	☐
demonstrates mirror writing	☐	☐	☐	☐
has untidy written work	☐	☐	☐	☐
erases excessively/messy papers	☐	☐	☐	☐
has difficulty organizing work on paper: columns, paragraphs, spacing, lines, etc.	☐	☐	☐	☐
is significantly slow at completing/starting written work	☐	☐	☐	☐

INFORMATION PROCESSING DOMAIN — Visual Motor, Fine Motor, Gross Motor Skills (Output) (cont'd)		ALWAYS	SOMETIMES	NEVER	N/A
produces immature artwork		☐	☐	☐	☐
appears cluttered and disorganized		☐	☐	☐	☐
falls out of seat		☐	☐	☐	☐
bumps into, drops or trips over things		☐	☐	☐	☐
can't determine where his or her body is in space (may sit on other children)		☐	☐	☐	☐
is awkward, clumsy, has poor motor coordination		☐	☐	☐	☐
has problems running, walking, skipping, throwing, balancing		☐	☐	☐	☐
avoids or has difficulty with most sports		☐	☐	☐	☐

Notes:

COMMUNICATION DOMAIN — Auditory Skills	ALWAYS	SOMETIMES	NEVER	N/A
habitually speaks too loudly or softly	☐	☐	☐	☐
appears confused and copies from classmates	☐	☐	☐	☐
turns one side of head toward speaker	☐	☐	☐	☐
requests repetition	☐	☐	☐	☐
appears irritable, stubborn or uncooperative	☐	☐	☐	☐
withdraws or daydreams	☐	☐	☐	☐
is easily distracted and unable to listen to what is being said	☐	☐	☐	☐
fatigues easily	☐	☐	☐	☐
tunes out what does not interest him or her	☐	☐	☐	☐
has difficulty maintaining eye contact with the speaker	☐	☐	☐	☐
interrupts or speaks out at inappropriate times	☐	☐	☐	☐
is too attentive when oral directions are given (strains to "see" what is being said)	☐	☐	☐	☐
has difficulty discriminating between sounds; i.e., difficulty hearing the similarities and differences between sounds and identifying differences between sounds; e.g., t/f, m/n, leave/leaf	☐	☐	☐	☐
has difficulty rhyming	☐	☐	☐	☐
has difficulty blending sounds	☐	☐	☐	☐
has difficulty sounding out words and confuses sounds	☐	☐	☐	☐
has difficulty remembering and repeating information presented orally	☐	☐	☐	☐
forgets all or part of instructions given	☐	☐	☐	☐
has difficulty carrying out oral directions	☐	☐	☐	☐
is frequently accused of not paying attention	☐	☐	☐	☐
has difficulty repeating long sentences or questions	☐	☐	☐	☐
makes errors in repeating, leaves out information, mixes up the order of the information or is simply unable to figure out where to start	☐	☐	☐	☐
has difficulty remembering short sentences, songs or important details in stories	☐	☐	☐	☐
is unable to use strategies to remember; e.g., rehearsal	☐	☐	☐	☐

COMMUNICATION DOMAIN — Language Skills	ALWAYS	SOMETIMES	NEVER	N/A
has difficulty understanding explanations	☐	☐	☐	☐
has difficulty breaking down complex sentence forms to analyze meaning	☐	☐	☐	☐
has difficulty understanding idioms and figurative language; e.g., You're pulling my leg.	☐	☐	☐	☐
needs rephrasing of questions or instructions	☐	☐	☐	☐
gives inappropriate or irrelevant answers to questions	☐	☐	☐	☐
asks questions and/or makes comments that are off topic/task	☐	☐	☐	☐
pauses a long time before responding to questions or requests	☐	☐	☐	☐
uses brief phrases or sentences and generally does not string these together	☐	☐	☐	☐
has difficulty formulating questions	☐	☐	☐	☐
has difficulty using parts of speech; e.g., adjectives, adverbs, articles, auxiliaries, conjunctions	☐	☐	☐	☐
is far less descriptive than others of the same age	☐	☐	☐	☐
has a limited expressive vocabulary	☐	☐	☐	☐
mixes tenses (past, present, future)	☐	☐	☐	☐
uses "telegraphic" speech omitting connecting words	☐	☐	☐	☐
wants to show you or use gestures rather than words	☐	☐	☐	☐
lacks verbal interactions	☐	☐	☐	☐
has difficulty verbally finishing a thought or utterance	☐	☐	☐	☐
relies on the listener to fill in missing information	☐	☐	☐	☐
has limited use of compound and complex sentence structures	☐	☐	☐	☐
uses only the regular form of plurals, verbs and adjectives; e.g., sheeps/sheep, gots/have, worser/worst	☐	☐	☐	☐
has problems explaining things clearly	☐	☐	☐	☐
has difficulty telling a story or talking about an incident, or finds it difficult to relay the story in sequence (first, next, last)	☐	☐	☐	☐

COMMUNICATION DOMAIN — Language Skills (cont'd)	ALWAYS	SOMETIMES	NEVER	N/A
tends to overfocus on details when relaying a message or information	☐	☐	☐	☐
has difficulty focusing on one theme when talking (jumps from one idea to the next)	☐	☐	☐	☐
makes simple, generally concrete statements	☐	☐	☐	☐
produces novel words or phrases (odd or original vocabulary); e.g., "rememberry" for "memory," and usually does not recognize an error was made	☐	☐	☐	☐
has word-finding difficulties characterized by the following: • shows excessive use of "filler" words and phrases • frequently says, "I know it, I just can't think of the word" • states object's function or description rather than its label; e.g., "the thing you put food in" for "refrigerator" • is not talkative	☐	☐	☐	☐
has difficulty summarizing and paraphrasing	☐	☐	☐	☐
has difficulty analyzing and synthesizing information	☐	☐	☐	☐

COMMUNICATION DOMAIN — Articulation	ALWAYS	SOMETIMES	NEVER	N/A
is difficult to understand	☐	☐	☐	☐
distorts sounds: doesn't substitute a completely different sound for another, but the sound production is not quite right	☐	☐	☐	☐
substitutes sounds; e.g., tat for cat	☐	☐	☐	☐
omits sounds; e.g., ba for bat or bue for blue	☐	☐	☐	☐
adds an extra sound to the word; e.g., stoap for soap	☐	☐	☐	☐
makes oral movement errors resulting in "slushy" speech	☐	☐	☐	☐
confuses the sequence of sounds in words; e.g., psghetti for spaghetti	☐	☐	☐	☐

COMMUNICATION DOMAIN — Fluency	ALWAYS	SOMETIMES	NEVER	N/A
has irregular tempo and rapid repetitions	☐	☐	☐	☐
has prolongations of sounds, words	☐	☐	☐	☐
makes changes in pitch and vocal tension	☐	☐	☐	☐
has blockages or complete cessation of speech	☐	☐	☐	☐
has tension and movement of face or body	☐	☐	☐	☐
experiences fear and embarrassment leading to speech avoidance	☐	☐	☐	☐
experiences increased stress and therefore increased dysfluencies in different situations; e.g., talking to the class, waiting for turn to answer questions, being put on the spot	☐	☐	☐	☐

Notes:

ACADEMIC DOMAIN — Reading	ALWAYS	SOMETIMES	NEVER	N/A
has difficulty identifying letters or letter sounds	☐	☐	☐	☐
has difficulty analyzing phonemes (breaking words into phonemes or speech sounds)	☐	☐	☐	☐
has difficulty blending (putting the sounds or phonemes together to form words)	☐	☐	☐	☐
has difficulty segmenting (dividing words into syllables and phonemes)	☐	☐	☐	☐
does not develop sight vocabulary	☐	☐	☐	☐
has difficulty in applying phonics rules	☐	☐	☐	☐
does not see words within larger words	☐	☐	☐	☐
does not see the relevance of prefixes and suffixes	☐	☐	☐	☐
does not use strategies to identify words; i.e., visual configuration, picture clues, semantic clues, syntactic clues, structural analysis, phonic analysis and syllabication	☐	☐	☐	☐
has choppy, disconnected reading	☐	☐	☐	☐
reads slowly, attending mainly to the identification of the words in print	☐	☐	☐	☐
has little or no intonation or voice inflection	☐	☐	☐	☐
has poor reading comprehension (can be quite fluent in reading but doesn't understand)	☐	☐	☐	☐
does not use context clues to interpret print	☐	☐	☐	☐
does not establish a purpose for reading; e.g., reading for information	☐	☐	☐	☐
has difficulty visualizing what is read	☐	☐	☐	☐
has difficulty deriving the main idea from a text	☐	☐	☐	☐
has difficulty summarizing information	☐	☐	☐	☐
has difficulty recalling details	☐	☐	☐	☐
has difficulty inferencing from the text	☐	☐	☐	☐
has difficulty defining and/or applying vocabulary	☐	☐	☐	☐

ACADEMIC DOMAIN — Reading (cont'd)	ALWAYS	SOMETIMES	NEVER	N/A
has difficulty seeing cause-and-effect relationships	☐	☐	☐	☐
has difficulty sequencing	☐	☐	☐	☐
has difficulty drawing conclusions	☐	☐	☐	☐
has difficulty applying information	☐	☐	☐	☐
has difficulty making predictions about possible outcomes	☐	☐	☐	☐
has difficulty focusing attention on comprehension because of the effort required to decode	☐	☐	☐	☐
has difficulty comprehending "referential language"; i.e., does not know who "they" refers to in a story	☐	☐	☐	☐
has difficulty monitoring for meaning	☐	☐	☐	☐
has difficulty using background knowledge appropriately (underuse or overuse it)	☐	☐	☐	☐

ACADEMIC DOMAIN — Written Expression	ALWAYS	SOMETIMES	NEVER	N/A
lacks knowledge of effective strategies such as pre-writing strategies; e.g., no plan	☐	☐	☐	☐
lacks knowledge of written language structures (sentences, paragraphs), lacks post-writing strategies (reading own work aloud to find out if it makes sense, editing)	☐	☐	☐	☐
has difficulty thinking of ideas, selecting a topic	☐	☐	☐	☐
has difficulty expressing ideas/experiences on paper (can often dictate the same thing more easily)	☐	☐	☐	☐
has difficulty sequencing ideas or maintaining focus	☐	☐	☐	☐
depends on external cues, such as how much to write, teacher feedback	☐	☐	☐	☐
has difficulty organizing ideas	☐	☐	☐	☐
has difficulty writing stories with an introduction, closing and logical sequence of events	☐	☐	☐	☐
writes stories that often resemble a list of unrelated details	☐	☐	☐	☐
writes answers to questions that are vague or unrelated	☐	☐	☐	☐
has difficulty organizing/developing effective research reports	☐	☐	☐	☐
has difficulty with conventions in written language: capitalization, punctuation, indenting	☐	☐	☐	☐
has slow, laborious handwriting (manuscript or cursive)	☐	☐	☐	☐
has illegible script (poor letter formation, poor spacing)	☐	☐	☐	☐

ACADEMIC DOMAIN — Spelling	ALWAYS	SOMETIMES	NEVER	N/A
has difficulty memorizing the full spelling of words	☐	☐	☐	☐
is unable to analyze spoken words into their separate sounds	☐	☐	☐	☐
has problems representing separate sounds with letters	☐	☐	☐	☐
uses ineffective strategies for recalling letter sequence where phonetic spelling doesn't work	☐	☐	☐	☐
lacks specific strategies or awareness of strategies to improve performance; e.g., mnemonics	☐	☐	☐	☐
has little or no understanding of spelling rules	☐	☐	☐	☐
writes incorrect letters due to student mispronunciation	☐	☐	☐	☐
has difficulty recognizing and identifying vowel sounds	☐	☐	☐	☐
has little or no understanding of morphographs; e.g., root words, endings that convey meaning such as plurals or tense, prefixes that convey meaning such as "pre" or "re"	☐	☐	☐	☐
has phonetic spelling errors; e.g., Ogest for August, desierbol for desirable	☐	☐	☐	☐
has non-phonetic spelling errors; e.g., stowth for south, frist for front	☐	☐	☐	☐
can show you the correct spelling of a word but still can't spell it	☐	☐	☐	☐
misspells common, frequently encountered words	☐	☐	☐	☐

ACADEMIC DOMAIN — Mathematics	ALWAYS	SOMETIMES	NEVER	N/A
has difficulty keeping his or her place when executing a series of steps in a computation	☐	☐	☐	☐
has difficulty differentiating between numbers (13/31), symbols (</>) and clock hands	☐	☐	☐	☐
has difficulty completing all questions without skipping any	☐	☐	☐	☐
has difficulty copying numbers accurately from a book or the blackboard	☐	☐	☐	☐
has difficulty sequencing numbers and steps	☐	☐	☐	☐
has difficulty with one-to-one correspondence	☐	☐	☐	☐
has difficulty with directional aspects (aligning, regrouping)	☐	☐	☐	☐
has difficulty understanding number concepts	☐	☐	☐	☐
has difficulty grouping manipulatives in sets/patterns/sequences	☐	☐	☐	☐
has difficulty using a number line	☐	☐	☐	☐
has difficulty doing oral mathematical exercises	☐	☐	☐	☐
has difficulty counting on from within a sequence	☐	☐	☐	☐
has difficulty hearing number patterns	☐	☐	☐	☐
has difficulty writing numbers and symbols appropriately and in proportion	☐	☐	☐	☐
has difficulty retaining newly acquired information	☐	☐	☐	☐
has difficulty retaining steps, procedures and meanings of words	☐	☐	☐	☐
has difficulty mastering basic facts/formulae/algorithms	☐	☐	☐	☐
has difficulty with problem solving involving steps	☐	☐	☐	☐
has difficulty verbalizing steps in solving word problems or equations	☐	☐	☐	☐
has difficulty relating mathematical terms to meaning; e.g., intersection of two streets and the intersection of two lines	☐	☐	☐	☐

ACADEMIC DOMAIN — Mathematics (cont'd)	ALWAYS	SOMETIMES	NEVER	N/A
has difficulty transferring information/knowledge to help solve similar problems/operations or to similar situations; e.g., using knowledge of doubles, $6 + 6 = 12$ to solve $6 + 7 = 13$	☐	☐	☐	☐
has inadequate understanding of place value	☐	☐	☐	☐
has difficulty understanding concepts, leading to rote memorization	☐	☐	☐	☐
has difficulty following models	☐	☐	☐	☐

Notes:

SOCIAL/ADAPTIVE DOMAIN	ALWAYS	SOMETIMES	NEVER	N/A
has few friends	☐	☐	☐	☐
is rejected by peers	☐	☐	☐	☐
is neglected by peers	☐	☐	☐	☐
complains of being picked on	☐	☐	☐	☐
bullies other students	☐	☐	☐	☐
seeks the company of adults vs. peers	☐	☐	☐	☐
has difficulty making and keeping friends	☐	☐	☐	☐
submits to peer pressure	☐	☐	☐	☐
has difficulty initiating and maintaining conversation	☐	☐	☐	☐
has difficulty responding to the needs of the listener	☐	☐	☐	☐
is egocentric in conversation and social interactions	☐	☐	☐	☐
does not know when to listen and when to talk	☐	☐	☐	☐
asks inappropriate questions	☐	☐	☐	☐
makes comments or gives replies that are off topic	☐	☐	☐	☐
talks more but provides less information than peers	☐	☐	☐	☐
calls out or makes comments at inappropriate times	☐	☐	☐	☐
has trouble controlling impulses	☐	☐	☐	☐
is shy or withdrawn (doesn't want to participate in group activities)	☐	☐	☐	☐
does not take risks	☐	☐	☐	☐
has difficulty "reading" social situations (does not understand body language, facial expressions, tone of voice)	☐	☐	☐	☐
is not able to distinguish the significance of tone, pitch, volume and/or tempo of voice in reading	☐	☐	☐	☐

SOCIAL/ADAPTIVE DOMAIN (cont'd)	ALWAYS	SOMETIMES	NEVER	N/A
has problems maintaining or using appropriate eye contact	☐	☐	☐	☐
is insensitive to body space and others' personal boundaries (excessive touching, staring, eavesdropping)	☐	☐	☐	☐
has difficulty with judgment/problem solving in social interactions (often does not/cannot define the problem in social interactions)	☐	☐	☐	☐
does not gather all the information being presented before engaging in social interactions	☐	☐	☐	☐
does not associate an act with a logical consequence (If I don't do my homework today, I will have to stay after school tomorrow. That's not fair. The teacher doesn't like me.)	☐	☐	☐	☐
has trouble analyzing the sensitivity or degree of formality in different situations and adjusting language to different people and situations (Kirk & Chalfant, 1984, p. 164)	☐	☐	☐	☐
is unable to apply learned social skills to real-life situations	☐	☐	☐	☐
has difficulty accepting responsibility for successes (external locus of control)	☐	☐	☐	☐
assumes little responsibility for his or her actions	☐	☐	☐	☐
does not believe he or she can influence situations (learned helplessness)	☐	☐	☐	☐
appears unmotivated	☐	☐	☐	☐
has low self-esteem	☐	☐	☐	☐
tattles on others (notices what others do wrong)	☐	☐	☐	☐
has little sense of humour or an inappropriate sense of humour	☐	☐	☐	☐
dislikes school ("I'm bored" statements)	☐	☐	☐	☐
has difficulty dealing with changes in teachers, routines, etc.	☐	☐	☐	☐
does not adapt to classroom routines, rules, expectations and a variety of teachers and teaching styles	☐	☐	☐	☐
has difficulty dealing with transitions	☐	☐	☐	☐
has difficulty controlling emotions; e.g., easily frustrated, loses temper	☐	☐	☐	☐
has inappropriate expression of feeling; e.g., overreacts or under-reacts	☐	☐	☐	☐

SOCIAL/ADAPTIVE DOMAIN (cont'd)	ALWAYS	SOMETIMES	NEVER	N/A
does not understand and recognize the feelings of others	☐	☐	☐	☐
is too passive	☐	☐	☐	☐
is too aggressive	☐	☐	☐	☐
is unresponsive to rewards or praise	☐	☐	☐	☐
requires more attention than others regarding behaviour, social interactions	☐	☐	☐	☐

Notes:

Section 2

Identification and Program Planning

This section will assist educators with the processes involved in developing a student-centered, comprehensive team approach to identification, referral and programming for students with learning disabilities. As every school and every student has a unique make up, this information should be adapted to individual needs and circumstances.

Early Identification

Students with learning disabilities follow a similar sequence of development as other students, however there may be differences in their rates of development. These students may also demonstrate peaks and valleys across activities. Such difficulties can go undetected before school entry (Rosner, 1993).

Advantages to early identification of potential learning disabilities include:

- ruling out visual, hearing or any other medical impairments that may affect learning
- locating students who may be academically, socially, cognitively or motorically at risk so that interventions or more in-depth assessments can be initiated
- locating students who are not developing language within normal ranges so that additional instruction/treatment can be initiated
- mobilizing school teams to plan proactively for programming and educational experiences that maximize students' strengths and provide enabling strategies from the onset of their schooling.

A learning problem may be suspected on the basis of observable behaviours, past history and performance. It is the combined responsibility of school personnel, other professionals and parents to gather this information and document any concerns.

The following factors, identified by Rosner,⁶ may assist in the early identification of the student who may be at risk for learning disabilities:

- complications in the student's medical history, prenatal to present
- delayed language development (receptive and/or expressive)

⁶ From *Helping children overcome learning difficulties*, by J. Rosner. Adapted and reprinted with permission.

- speech articulation problems
- difficulty with phonemic awareness
- delayed development of consistent hand preference
- delayed gross and fine motor development
- difficulty with tasks that involve a sequence of actions: student does not recognize that tasks can't be accomplished satisfactorily unless they are broken down into a series of steps and that step one must be dealt with first
- poor memory, particularly when it comes to directions that comprise more than one or two steps
- avoidance of activities that involve sustained visual and/or auditory attention, for example, colouring, working with puzzles and listening to stories
- poor classification skills: student does not readily recognize that things may be categorized on the basis of certain attributes, such as colour, size and function
- poor association skills: student does not recognize that there are significant similarities and differences in certain units of information, which if noted, facilitate learning new information
- short attention span (relative to age)
- difficulty copying basic designs
- difficulty interpreting idioms, jokes, riddles, play on words
- misses or misunderstands non-verbal cues
- does not seem to understand the affective status of others derived from facial expressions, body movements and tone of voice
- difficulty developing peer acceptance/relationships.

Setting up a Student Support Team



A student support team is an important vehicle for maximizing student success. The team may consist of the school administrator, a classroom teacher, a special education teacher, a student's parents, and where appropriate, the student. The team uses a group process to problem solve and brainstorm suggestions that might be helpful for an individual student's education. Teams can include grade group teams, division teams or cross-age teams.

Student support teams are particularly powerful in helping classroom teachers address problems a student is encountering prior to formal assessment or diagnostic procedures. Joint problem solving can focus on the needs of a student and interventions can be suggested for immediate implementation. The checklist presented in Section 1, pages LD.28-46, may be used by classroom teachers to describe the areas of difficulty encountered by a student. The descriptors can help the team define the problem, target areas of intervention and identify questions to be answered through further observation and assessment. For some students, the student support team may organize further assessment, develop individualized program plans (IPPs) and/or make placement recommendations.

The purpose of developing a student support team is to tap the school's available people resources in order to:

- collaborate and consult
- support the student and each other
- plan for proactive, practical and effective student-centered programming and interventions
- share expertise
- engage in ongoing professional development activities.

Every student support team has a unique make-up. They are designed to be site specific in order to fit the skills, expertise and situational demands within each school and across grade levels. The goals for the team are often similar, however, and may include:

- responding to referrals from classroom teachers to provide them with immediate input and ongoing support
- supporting classroom teachers by collectively brainstorming effective classroom strategies to respond to the needs of students with special needs
- developing IPPs
- supporting and refining collaborative and/or coordinated efforts between special education personnel, grade groups, planning groups etc., to maximize student success
- expanding and improving classroom-based assessment
- reducing the need for formal assessment (intellectual, psycho-educational)
- maximizing communication and continuity

- evaluating the effectiveness of programming and modifications, and suggesting adjustments where necessary.

Collaboration and consultation are key processes for effective student support teams. Whether working towards a formal IPP or engaging in problem solving at a more informal level, several stages are necessary for the team process. The following stages are outlined by Idol, Nevin & Paolucci-Whitcomb:⁷

1. establish the respective roles and responsibilities of the members
2. define and discuss the types of problems or issues that need to be addressed at the school level; focus on goals and objectives required to resolve the problems
3. explore possible interventions for solving the problems
4. generate a plan for implementing the solutions to the problems
5. develop a method for monitoring the success of the implementation plans
6. follow-up to verify whether goals were reached; redesign unsuccessful interventions; reassess the identified problems or end the process.

Meeting Procedures

The following team meeting operating procedures are recommended by Clark & Clark.⁸ Ensure that information is recorded by the team leader. See Appendices 1–4, pages LD.238–241 for forms.

Appendix 1
Student Support Team Request for Assistance

Appendix 2
Student Support Team Problem-solving Worksheet

Appendix 3
Student Support Team Problem-solving Worksheet: Action Plan

Appendix 4
Student Support Team Meeting Evaluation

Student's Name: _____ Date: _____
Age: _____ Grade/Level: _____
Referring Teacher: _____
Referral: _____

	Yes	No
1. The reason for referral was clearly communicated.	Yes	No
2. Information presented was relevant to the situation described.	Yes	No
3. Specific examples were presented.	Yes	No
4. Questioning related the reason for referral.	Yes	No
5. Consensus was reached on the situation.	Yes	No
6. Possible solutions were brainstormed freely.	Yes	No
7. An action plan was developed.	Yes	No
8. The referring teacher indicated intentions to implement in his/her classroom.	Yes	No
9. Necessary support for implementation was determined.	Yes	No
10. Plans for success were defined.	Yes	No
11. Arrangements were made for follow-up.	Yes	No
12. All participants had an equal opportunity to contribute.	Yes	No
13. The team agreed on date and when the next meeting was.	Yes	No

Area for further team development:

1. Welcome the referring teacher/parent to the team and review the student support.
2. The referring teacher and/or parent elaborates briefly on the situation described on the request for assistance form. See page LD.238 for a blank form.
3. The resource teacher contributes additional information; e.g., data collected during classroom observation.
4. Team members ask clarifying questions. Ask the referring teacher to prioritize concerns if more than one problem exists.
5. Determine if there has been sufficient information presented to begin problem solving.

⁷ From *Collaborative consultation*, by L. Idol, et al. Adapted and reprinted with permission.

⁸ From Gail & Garry Clark. Reprinted with permission.

6. Ensure that consensus is reached on the problem and that all team members have a clear idea of the nature of the problem.
7. Brainstorm and record all possible solutions, both short-and-long term. See page LD.239 for a blank form.
8. Discuss, evaluate and refine (where necessary) possible interventions from those suggested.
9. Have the referring teacher select interventions deemed workable in the existing classroom situation. Try to limit the initial selection to a few strategies.
10. Determine what support is needed to implement the chosen interventions. See page LD.240 for a blank form.
11. Define the criteria for evaluating success of the action plan.
12. Decide what, if any, additional input is needed.
13. Set the date for follow-up on this referral.
14. Evaluate the meeting on the record sheet. See page LD.241 for a blank student support team meeting evaluation sheet.

Parents as Team Members

The active involvement of parents enhances the effectiveness of the team. Parents have a powerful impact on their children's whole development, including their education. They have a wealth of information about their children's backgrounds, personality traits, likes, dislikes and effective strategies. Parental support has positive and pervasive effects on school success. Parents can complement school programs by nurturing academic motivation, or more directly by instituting home programs, such as ones for behaviour or tutoring. Parents need to feel welcome as part of the school team process. "Parent participation cannot be mandated. It must be nurtured, encouraged and reinforced" (Heron & Harris, 1993, p. 191). In order for effective teamwork to occur, it is critical that both parents and educators are comfortable and open when communicating with each other. Communication should focus on the positive as much as possible.

Some suggestions for increasing understanding and openness follow.

- Understand the level of knowledge and acceptance of a student's learning disabilities; e.g., if a student is new to a school or has been recently diagnosed, this will have some bearing on a teacher's or parent's contributions.
- Recognize that parents of children encountering school difficulty may experience the "grief cycle" and may feel shock, anger, guilt, denial or sorrow. Be careful not to add to the parent's feelings of frustration, anger, inadequacy or guilt about their child's difficulties.
- Avoid the use of jargon.
- Avoid placing an emphasis on policy issues.
- Avoid judging or blaming.

- Be flexible in arranging meetings and understanding of last minute cancellations due to work demands or unexpected changes.
- Empower parents and other members of the student support team to be involved in the process from the onset; e.g., defining the problem.
- Do not dwell on previous history; e.g., parents whose past school experiences may have been stressful or student behaviour that is no longer part of the concern.
- Use problem-solving approaches; e.g., What are the specific difficulties? What suggestions are there for accommodations based on current realities and resources?
- Be open to changes in technology or new teaching approaches.
- Avoid comparing the student to siblings or classmates, focus on the individual student's strengths and needs.
- Recognize and accept parents' roles as advocates for their children.
- Ask for input from parents. Prior to a team meeting, give parents guidance about what information to bring, or areas to think about ahead of time.
- Actively listen to the parents' points of view.
- Give positive feedback.
- Limit note-taking but record important information and action plans.
- Share written documentation with parents (encourage parents to keep records).
- Provide suggestions for reading and for community resources parents may wish to access.
- Explore to what degree parents want to be involved in their child's educational program.
- Follow up on the plan; ongoing communication with parents affirms their role as team members.

For further information about parental involvement, refer to *Programming for Students with Special Needs* series: Book 3 — *Individualized Program Plans* (1995), pages IPP.15–20 and *Partners During Changing Times* (1996). See pages LD.290–291 for annotations of these resources.

Communication in Home-School Team Building

Share all relevant information, including previous assessments, placements, IPPs, report cards, etc. Through team communication, parents and teachers have the opportunity for increased knowledge and understanding of the student with learning disabilities from a variety of settings. This leads to the development of strategies and programming that can be reinforced for generalization or transfer, and for strategies already generalized to be built upon.

When parents and the school work together and communicate on a regular basis, there is greater opportunity for reinforcement. Parents who know what their children have been working on and how they are doing, are more likely to provide feedback and support at home. Heron and Harris (1993) discuss a study in which student performance increased when regular notes were sent home. Notes provide a "tangible reminder from the teacher that the student's performance was acceptable and serve as a prompt to parents to comment on their child's performance" (Heron & Harris, 1993, p. 215). Notes are often the most effective means of regular communication considering people's hectic schedules. Student organizers and homework books that are used regularly can also facilitate home-school communication and student responsibility. Parents and school staff need to arrive at the means of staying in touch that is most suited to them.

Regular contact between home and school promotes consistency in expectations for the student. If the student is an active participant in the ongoing communication between home and school; e.g., maintains a homework/communication book, then the chances for personal responsibility and ownership for learning tend to increase.

Parents' involvement on student support teams can also provide for greater continuity in terms of the strategies and approaches being used to teach their children. Parents can be a great resource for helping their children rehearse and practise a sequence of skills for learning if they have that information. For specific home instruction to complement school instruction, home programs should be clear and complete. They may include the elements on the following page.

Elements of a Home Program

A Plan — What should be addressed? What should be done? By whom? How often? It is most helpful at this stage for parents to meet with the student support team to review and participate in the plan.

Training Procedures — Parents should be taught the strategies necessary for working with their child at home.

Recording Procedures — Set up something that parents can easily use to record what they have been doing, how often and the progress being made.

Communication — Set up a consistent schedule for follow-up contacts. Introduce parents to other families working on similar programs to provide support and an exchange of ideas.

Some parents simply do not have schedules that afford this level of involvement with their children's programs. Parents can be a great resource for less time-consuming assistance, such as monitoring homework, reading to their child, doing practical transfer activities, such as grocery shopping for number awareness, categorization (fruits, vegetables, etc.), measurement activities, baking, home repairs and vocabulary development.

Program Planning Process

The following page contains a program planning process model. The model employs a collaborative approach to the identification and program planning for students with special needs. The student support team is an integral part of this process as it uses a group process for problem solving and taps the expertise of the people resources available at the school. Parents, and where appropriate students, should have the opportunity for meaningful input into the identification and program planning process.

STUDENT

Program Planning Process Model

Classroom Screening / Planning

Participants	Teacher (with possible assistance of student support team members)	• Hold discussion with parents & teachers • Ensure vision & hearing screenings are up to date • Collect information (case history, observations, informal assessment) ➤ Enough information ➤ Need more information? Interventions unsuccessful? • Plan & implement strategies • If successful, no further intervention
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Referral to Student Support Team (Initial Meeting)

Participants	Student Support Team; e.g., administrator parents student teacher(s) others	• Review of case history and student record portfolio • Review of classroom screening Define the problem ➤ Enough information ➤ Need more information? • Brainstorm interventions • Select interventions • Plan implementation • Plan monitoring and follow-up • May or may not begin to develop IPP • Identify information needed (assessment) • Identify personnel • Obtain parental permission for assessment Implement Intervention Additional Assessment
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Follow-up Student Support Team Meetings

Participants	Student Support Team; e.g., administrator parents student teacher(s) others	If effective, If not effective, Further follow-up may not be needed Plan new interventions and/or gather further information (go back) • Review and synthesize all data • Plan program, monitoring and follow-up • Begin the IPP process, if IPP is required
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IPP Individualized Program Plan

Participants	IPP Team; e.g., administrator parents student teacher special ed teacher teaching assistant counsellor consultants others	• Develop IPP • Implement IPP • Monitor progress • Evaluate at regular intervals • Adjust as appropriate • Conduct annual review & provide recommendations for next year (or IPP interval)
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Classroom Screening / Planning

When a teacher or parent has concerns about a student's academic progress or behaviour, it is important for the teacher to accumulate and review as much pertinent information as possible and to initiate intervention strategies to maximize the student's success. Before making a referral outside the classroom, the teacher gathers information, discusses issues with parents and other teachers (often with members of the student support team) and explores intervention strategies.

This pre-referral stage is often given only cursory attention. The classroom teacher has the expertise and tools to develop a comprehensive overview of a student's learning. Review of records, history, portfolios and student work samples provide excellent information about strengths, weaknesses and previous interventions. Close contact with the parents is also important. Parents need to be aware of any concerns a teacher might have, from the onset. Parents can also provide valuable information that may not be in the student's records and often have insights into strategies that have or haven't worked for their child in the past. Classroom teachers may also want to use checklists, self-made tests, criterion-referenced tests or other informal measures. See informal assessment, page LD.58. The domain model checklist in Section 1, pages LD.28–46, can assist the teacher in organizing observations and information and in identifying areas to target intervention strategies. Often, teachers will stop at this point and arrive at their own intervention strategies and a plan of action. The plan is implemented and monitored. If effective, no further input is required.

Referral to Student Support Team (Initial Meeting)

If a classroom teacher has accumulated information, tried and monitored intervention strategies but continues to be concerned about a student's learning and/or behaviour, then a referral is made to the student support team. See page LD.49 for more information on setting up student support teams. Ideally, the referral is sent to the coordinator of the team. The composition of the student support team will vary but may include the referring teacher, the school administrator, classroom teachers, special education teacher, school counsellor, parents and other significant stakeholders; e.g., speech-language pathologist. At the initial meeting of the student support team, which ideally includes parents, information is reviewed, the problem defined and problem solving begins. See meeting procedures, pages LD.50–51.

Team members may feel that there is sufficient information available to plan intervention strategies. They may or may not decide to develop an IPP. The classroom teacher implements and monitors the suggested intervention strategies. The team meets to review progress at the follow-up student support team meeting.

If the team does not have sufficient information to plan interventions, the classroom teacher or other school personnel may be asked to gather further informal assessment and/or formal assessment information. See assessment, pages LD.58–69. Once it is decided what additional information is needed and who should be involved in gathering the information, written permission for assessment is obtained from the parents. Additional assessment is conducted and the team meets again to review the information at the follow-up student support team meeting. If more information is required from outside of the school; e.g., other agencies, medical personnel, system consultants, then referrals are made with parental permission.

Follow-up Student Support Team Meetings

The team meets to follow-up on progress. If intervention strategies were implemented and were effective, further follow-up may not be warranted. However, if there are still concerns about the student, new interventions may be suggested and/or additional assessment information may be needed. With parents' permission, appropriate referrals are made and follow-up meetings planned.

If additional information has been gathered since the initial team meeting, it is reviewed and synthesized. Program interventions are planned. An IPP may or may not be developed. Even if a formal IPP is not developed, the planned intervention strategies are implemented, monitored and followed by the team. Older students should be included in this process to encourage personal responsibility and ownership for the plan.

IPP Individualized Program Plan

If it is decided by the school and parents that modifications within the regular program are extensive enough to require an IPP, the IPP process continues. The student support team should meet to review the formalized IPP and continue to meet at specified times throughout the year to formally review and evaluate the effectiveness of the programming and/or accommodations put in place. The IPP team may be composed of members of the student support team, or others.

For more information on IPPs, see pages LD.70–72 and pages LD.86–90 for examples of team approaches toward problem solving and program planning.

Assessment

Assessment is the process of gathering information in order to find out what students know (knowledge), what they can and cannot do (skills), their awareness and use of strategies, and their personal attitudes. It is important to remember that the primary goal of any assessment should be to develop programming and interventions that facilitate growth and independence, both educationally and psychologically.

The information gathered from assessments is used to help those working with the student make decisions about the type of educational program, learning task, equipment, materials and strategies to use in meeting the needs of the student, ensuring continuous academic and social growth, and success.

Assessment serves various purposes. The identification and placement of students with learning disabilities is based on assessments. The nature of the individualized program plan is also based on assessments. The following discussion of assessment is relative to day-to-day program planning.

Assessment for Program Planning

Assessment for program planning is usually carried out by the classroom teacher, or under the direction of the classroom teacher. Assessments may be either contextualized or decontextualized. These two types of assessment usually serve different purposes in program planning. See pages LD.305–317 for an annotated test inventory.

Contextualized Assessment

Contextualized assessments are also known as curriculum-based assessments. This means the assessment is done within the context of the prescribed curriculum being used (Brown III, 1992, p. 93). The results of contextualized assessment are an indication of how the student is performing relative to the learning which is expected within the context of the prescribed curriculum.

Contextualized assessments can be either formal or informal. They can be criterion referenced only, or both criterion and norm-referenced. "Criterion-referenced" tests are designed to measure a student's development of a particular skill in terms of absolute levels of mastery. "Norm-referenced" refers to tests in which a student's performance is compared to other students.

Informal Assessment

Informal assessment can take place within the context of routine classroom activity, often without the student being aware that assessment is taking place. Informal contextualized assessments include the observation of process and of the products produced by the student.

Observation of process includes:

- anecdotal records of skills, behaviour and the nature of the student's involvement in learning
- interviews or conferences with the student, parents and other professionals working with the student
- informal reading inventories
- using guides or checklists
- direct observations or use of tape recordings of oral reading, participation in discussions, retellings of stories or oral descriptions
- dynamic assessment. See page LD.64 for a definition of dynamic assessment.

Observation of student products includes looking at or listening to the following:

- art portfolios
- performance of music and drama productions
- writing folders
- selected pages from notebooks and journals
- pupil reflection sheets and self-evaluation records
- reading logs
- the tasting of foods prepared by the student in classes such as home economics or food studies.

Examples of informal contextualized assessment:

- **Observation of Product**
After social studies lessons on changes in our community and the meaning of past, present and future, have students construct a triangular prism mobile. Students are asked to select one aspect of life in their community, such as housing, transportation, acquiring food or education. They draw that aspect of community life as it was in the past on one panel of the mobile. On another panel, they draw that aspect in the present. On a third panel, they draw that aspect as they think it will be in the future. The finished product can be used to assess if the student has demonstrated an understanding of the concept of change which has occurred over time and the meaning of past, present and future as prescribed in Grade 3 Social Studies, Topic A.

- Diagnostic Inventories, Checklists
Checklists are used to keep track of a number of areas, including targeted difficulties and errors. Inventories are similar and help track specific skills such as word identification, comprehension skills or recall of mathematics facts. Inventories are subject specific and may indicate whether a student is at independent, instructional or frustration levels in skill areas.

Example of Diagnostic Reading Checklist⁹

Word Identification Focus

Name: _____

Date: _____

READING BEHAVIOURS WHILE READING ORALLY	Frequently	Occasionally	Not Enough Information	COMMENTS
PREDICTING/INFERRING Uses context clues to predict words.				
ATTENDING/ANALYZING/ASSOCIATING Reads without omitting words or parts of words.				
Reads without adding words or parts of words.				
Reads without reversing the order of letters in a word or words in phrases or sentences.				
Associates larger more meaningful units with appropriate sounds in a word; e.g., <i>whole words, syllables, letter clusters and blends</i> .				
Gives a real word; e.g., <i>fiend</i> for <i>friend</i> , rather than a nonsense word in a story; e.g., <i>fienda</i> for <i>friend</i> .				
SYNTHESIZING Blends word parts together to read words as whole words.				
MONITORING Recognizes that a word is not known by repeating parts of a word or whole words.				
Recognizes and corrects errors.				
Totals				

If there are more checkmarks in the *Occasionally* and/or *Not Enough Information* columns than in the *Frequently* column, further evaluation of word identification is necessary.

⁹ From *Diagnostic reading program: book 3: duplicating masters*, by Alberta Education. Reprinted with permission.

- Observational Checklist

Checklists can be used to evaluate students' individual activities and participation in group activities and discussions. Checklists are useful for self, peer and teacher evaluation, and for analyzing or communicating student learning. The following checklist may be used to monitor students' participation in class discussions.

[illegible]

• Emergent Reader Checklist

The following checklist can be used to organize and analyze observations to determine the growth of the emergent reader. The information from this checklist is also useful when having interviews with parents. Additional information on this checklist can be found in *Diagnostic Reading, Diagnostic Teaching in a Language Learning Framework 5*, Alberta Education, 1993, pp. 35-37.

Emergent Reader Checklist¹⁰

Student's Name: _____

Date: _____

Language Learning Concept Area	Signs of Reading Growth	Facilitating Experiences	Comments
A, C	Shows positive attitudes toward books and print	☐ Shares a favourite book at circle time ☐ Selects books when given choices ☐ Likes story time	
A	Reads and rereads texts exhibiting reading-like behaviour	☐ Engages in big-book sharing and partnered reading of individual books	
C, E	Writes and reads messages using letter-like shapes, letters, words, pictures	☐ Participates in writing centre which contains a wide variety of writing materials	
A, C	Sees reading as a meaningful part of life	☐ Plays with a variety of literacy materials during dramatic play; e.g., milk cartons, soap boxes, shopping lists ☐ Imitates adult literacy procedures	
A	Reads along with a fluent reader	☐ Reads along with "listen and read" tapes, either commercially produced or homemade ☐ Reads with an experienced reading buddy ☐ Participates during readings of enlarged texts ☐ Enjoys paired reading	
E	Displays directionality and develops the ability to match word-space-word	☐ Tracks with a pointer during a big-book experience ☐ Develops the word-space-word concept during shared reading, individual reading or individual reading of a favourite story	
D	Understands what a story is	☐ Contributes to a shared writing experience ☐ Dictates a story for language experience ☐ Participates in story-composing during drama ☐ Guesses what will happen in a story ☐ Writes stories	
A, L	Engages in mumbling, echoing and completion reading	☐ Experiences big-book sharing episodes ☐ Enjoys shared reading with teacher or buddy	
B, E	Uses predictive strategies to approximate text	☐ Completes cloze activities during big-book experience and shared reading ☐ Shares a favourite book in reading-like manner during circle time ☐ Chimes in with readings of predictable books	
E, G	Reads environmental print	☐ Points to environmental print ☐ Identifies products in photographs ☐ Includes environmental print in art work ☐ Reads print in classroom displays; e.g., <i>Our Favourite Cereals</i>	

¹⁰ From *Resource book for helping young children to become readers*, by M. F. Juliebo. Adapted and reprinted with permission.

- Anecdotal Records

These records relate to the teacher's awareness and documentation of student behaviours, use of strategies and highlights or frustrations in learning that occur within the educational environment. They can be used to determine behaviours that can interfere with the learning process and to pinpoint the time of day, the type of learning situation or even the peers with whom a student has difficulty. These records can be systematic; e.g., tracking a student at regular time intervals or informal. Observations can be especially important for the student with learning disabilities because the "inconsistencies in their skills and achievements make them particularly vulnerable to the impact of instructional techniques and to classroom organization and demands" (Brown III, 1992, p. 98).

- Dynamic Assessment

Dynamic assessment focuses on the process of learning rather than on the products. It is interactive in that the assessor, while working with the student on a task, provides various levels of support or intervention until the student is able to complete the task successfully. The primary purpose is to assess areas of cognitive functioning and apply the assessment results to curriculum areas (Campione, 1989; Cioffie & Carne, 1983). Typical formats include test-teach-retest or teach-test and involve purposeful teaching (Lidz, 1991). In contrast to standardized assessment, dynamic assessment involves active changes by the examiner to meet a student's individual needs to facilitate success. The examiner focuses on the amount and type of input needed by the student to perform effectively (Samuels, Burrows, Scholten & Theuinessen, 1995).

An example of dynamic assessment:

- Test-Teach-Retest

A student is having difficulty with the division of a two-digit number into a four-digit number. On a standardized assessment, the student may have to complete problems involving the division of a two-digit number into a four-digit number. The test may only look at the answer (which is the student's product) and will indicate if he or she is successful in producing the expected product. The assessor does not interact with the student while he or she is solving the problem. In contrast, during a dynamic assessment, the assessor observes the student doing the problem. If the student makes a mistake in any one step, the assessor intervenes. Through the process of providing prompts, teaching mini-lessons or other assistance, the student ends up with the correct answer. The assessor makes notations and, on the basis of observations, makes program plans to

provide instruction in the area of need demonstrated by the student. The results of this assessment may indicate that the student is still having problems subtracting using regrouping. The teacher teaches the student subtracting using regrouping and provides learning activities to assist with learning this concept given the student's particular needs.

When the student has learned subtraction with regrouping, the teacher reviews division and then retests the division of two-digit numbers into four-digit numbers.

Formal Assessment

Formal assessment is carried out with students having full knowledge that the activity is designed to assess their knowledge, skills and attitudes. Formal assessment can be criterion referenced only, or both criterion and norm-referenced.

Contextualized formal assessment may, or may not, be teacher prepared. The Alberta Department of Education achievement tests for various subject areas are examples of formal contextualized assessment, which are both criterion and norm-referenced. Commercially prepared criterion-referenced tests usually assess what is taught in a typical school curriculum (Brown III, 1992, p. 92). Many are designed to tie in with U.S. curricula and norming, and should be previewed before use to ensure they are linked closely enough with current Alberta/Canadian curricula.

Contextualized formal assessments include:

- Teacher prepared:
 - tests
 - unit tests
 - cloze tests
 - graded work, such as research papers
 - assignments
 - checklists.
- Publisher prepared (or prepared by others):
 - unit tests
 - workbook pages
 - provincial achievement tests.

Decontextualized Assessment

Decontextualized assessments are measurements unrelated to the prescribed curriculum. They can be either criterion or norm-referenced. Information gained from these assessments is usually used in program planning to assist in identifying patterns of strengths and needs and the nature of specialized materials or equipment needed to support students in their learning.

Decontextualized assessments are often formal tests which require special training and expertise in test administration, and assess development, ability and skills in the following areas:

- cognitive learning (intellectual, IQ), processing and memory abilities
- visual-motor/visual-perception abilities
- language and communication abilities
- social/emotional and adaptive abilities
- academic abilities
- gross and fine motor development.

See Section 8, page LD.305, for listings of specific tests in some areas.

An example of a formal decontextualized assessment:

- The teacher may request that an audiologist assess a student's hearing. The results of such an assessment may lead to assessing and improving the acoustics of the classroom, or altering the seating arrangement to accommodate a student who has some hearing loss. While such assessment is not curricular based, the information gained from it may be used in making decisions related to programming.

An example of an informal decontextualized assessment:

- The teacher notices that a student is always squinting when reading material which has been photocopied. The student tells the teacher the paper seems shiny and the light from the paper shines into her eyes. Based on this informal assessment, the teacher experiments with photocopying the student's material on various colours of paper. Through observation and student feedback, the teacher finds that using buff or light yellow paper enables the student to read the material without squinting.

Maintaining Assessment Information

The teacher has a responsibility to maintain records and samples of assessment for use in communicating student growth and achievement to the student, parents and other authorized people involved in the student's education.

Over time, educators have developed numerous ways of maintaining such records and samples. The current "best practice" format for maintaining these records involves the use of student portfolios. If properly maintained, they provide a chronological record of student growth and achievement.

Student Portfolios

"A portfolio is a collection of selected examples of the types and quality of work that a student has produced in any given subject area. This collection serves as an exhibit of work that is reflective of that particular student's skills either at a single point in time or at various points in time" (Idol & West, 1993, p. 26).

Portfolios offer students:

- greater awareness of themselves as learners
- multiple opportunities to show their knowledge and skills
- active involvement in setting objectives, evaluating growth and planning
- a record of changes over time
- a level of achievement and an index of growth each year
- a collection of products to support the story of their growth (processes used, as well as end products)
- concrete evidence to show others involved in their schooling what they know and can do
- source material for answering the question, "What did you learn (do) in 12 years of schooling?"
- information for goal setting
- evidence of hard-to-score attributes such as perseverance, flexibility, thoughtfulness, self-confidence and a broad range of outcomes.

Portfolios offer teachers:

- a means for highlighting what an individual can do in relation to curriculum objectives
- a profile of students' growth histories (their stories told with a variety of products, judgments made on that work, reasons for its selection to the portfolio, students' comments on work, students' reflections and data showing progress towards objectives)
- models of achievement of outcomes
- examples of work in classroom contexts
- a means for integrating data from multiple sources
- methods for understanding criteria and interpreting standards for their unique situations
- material for communicating student learning; e.g., at student-led parent conferences, and for making decisions about programming.

Examples of information to be included in students' portfolios:

- monthly samples of students' printing/writing
- samples of art work
- learning logs from science activities
- samples of mathematics skill practices and problem-solving activities
- taped oral reading (mid-year, end of year)

- samples reflecting various stages of the writing process; e.g., brainstorming, pre-writing plan, draft, revision, published copy
- variety of writing; e.g., book reports, poetry, etc.
- quizzes/tests
- completed journals
- photographs of students involved in learning activities
- reading logs.

Portfolios are usually managed by students. The teacher and students establish criteria for selecting material to be placed in the portfolio. Label the conditions or circumstances under which the work was completed; e.g., independent activity, group activity, etc.

Tips ➔

for Assessing Students with Learning Disabilities

- Make sure assessment is ongoing. This prevents the panic of trying to get assessments done before results need to be communicated at report card time.
- Share assessment results on an ongoing basis so there are no "big surprises" at report card time.
- Use a variety of methods to assess student performance relative to curriculum expectations.
- Date all items used in assessment.
- Attach, to the assessment item, a record of the conditions under which the work was completed.
- Access experts as need dictates, to assist with assessment. Follow proper procedures, including parental consent.
- Make sure information from the assessment is shared with the student on an ongoing basis and becomes part of the goal-setting process.
- Do many short assessments on concepts within a unit. Photocopy these for the student to use when preparing for a unit test.
- Keep a tape recorder and blank tapes in the room at all times. Label one tape "notes to myself." Between classes, record notes relative to your observations, and ideas that come to you about grouping students. Listen to the tape at the end of the day to assist you with planning and note-making.
- Colour code tests and assignments by using a different colour of paper for each subject. This speeds up the organization of material in the student portfolio in preparation for parent-student-teacher conferences.
- For teacher prepared assessments or worksheets:
 - Use large type.
 - Keep page format simple.
 - Avoid use of pictures or visual distracters extraneous to the problems to be solved.
 - Make use of white space. Leave plenty of space for work and recording answers. White space also sets problems off so they are clearer and easier to understand.
 - Use different font types for directions and problems.
 - Box or bold directions.
 - Do not mix the types of questions. For example, group all cloze questions together and group all short answer questions.
 - Keep the number of problems per page low.
 - Make sure directions are clear and simple.
- Go over directions with students, having them underline or highlight key words.
- Often a longer test is overwhelming for students. Help students "chunk down" the task by covering sections of the page not being worked on, or by giving them one part of the test at a time. A test can be cut into segments for students with attention difficulties. When one segment is finished they bring it to the teacher and get the next segment.
- Reduce distractions during testing and give students opportunities to use alternative environments within the classroom or other supervised areas.
- Provide students who have problems writing with the support of a scribe or a tape recorder for recording their answers.
- Allow adequate time with appropriate stretch breaks.

Individualized Program Plan



The individualized program plan (IPP) is a written commitment of intent by an educational team. It is meant to ensure the provision of appropriate programming for students with special needs and to act as a working document. It also provides a record of student progress. Modifications in programming should be reflected and documented in a student's individualized program plan.

Preparation of the IPP provides the opportunity for parents, teachers, school-based administrators and others involved with the student to address the learning needs of the student. Although the nature and degree of involvement will vary, students should be involved in the IPP process.

Alberta Education requires that an IPP be developed and implemented for each student identified as having special needs. The school administrator has the responsibility of ensuring that the IPP is prepared and maintained. The IPP should include the following essential information:

- assessed level of educational performance
- strengths and areas of need
- long-term goals and short-term objectives
- assessment procedures for short-term objectives
- special education and related services to be provided
- review dates, results and recommendations
- relevant medical information
- required classroom accommodations (any changes to instructional strategies, assessment procedures, materials, resources, facilities or equipment)
- transition plans.

An IPP should describe what the student knows and can do, what the student should learn next, where the instruction will take place, who will provide it, how long it will take and what the student will do to demonstrate learning.

It is important to consider strengths and areas of competence when developing an IPP. The teacher begins by studying the student to determine what he or she knows, what strategies are used, and how knowledge is acquired. The IPP should also consider the student's need to be actively involved in learning activities and build in opportunities and expectations so that the student will take increased responsibility for learning. Students with learning disabilities sometimes have an extensive collection of facts and experiences, but have difficulty seeing relationships among concepts, making inferences, and generalizing and transferring skills and strategies.

To address this need, the IPP should include the development of metacognitive strategies; e.g., self-monitoring, problem solving, and opportunities for generalization of skills and strategies across a variety of tasks and contexts.

For more information on developing IPPs, refer to Book 3 — *Individualized Program Plans*, in the *Programming for Students with Special Needs* series. See page LD.290 for ordering information.

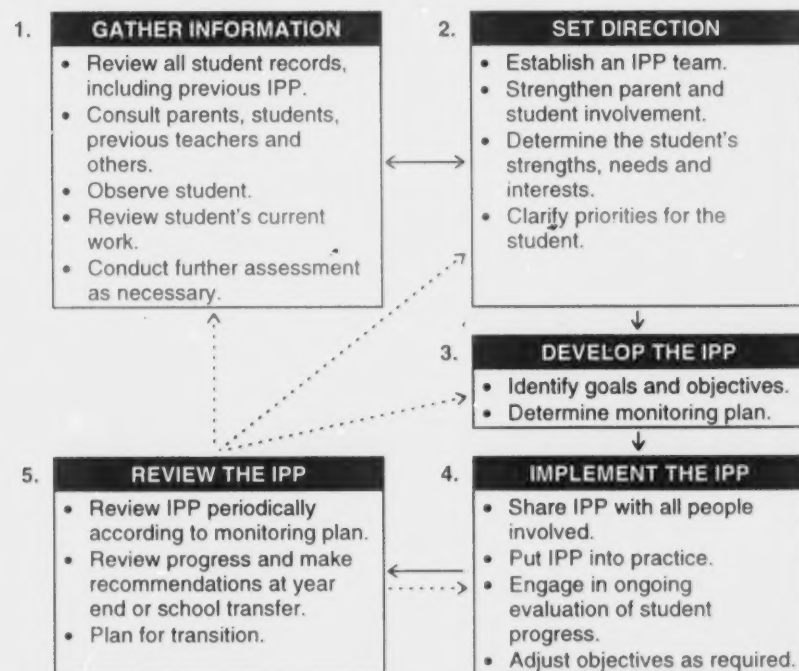
IPP Process

The process for developing an individualized program plan is outlined in the following stages:

1. gather information
2. set direction
3. develop the IPP
4. implement the IPP
5. review the IPP

Although the stages are given in sequence, teachers may vary the emphasis and order to meet individual needs. Several stages may be worked on simultaneously. It is important to emphasize that a team approach underlies the IPP process.

The following graphic represents an overview of the five stages in the IPP process. It may be used as a reference to ensure that the steps in developing, implementing and reviewing an IPP are addressed. Note the interaction among the stages indicated by the arrows. The dotted arrows emanating from stage five indicate that during the review it may be advisable to refer back to the preceding stages in the IPP process.



Clarify Priorities

From the information gathered, the IPP team determines the student's strengths, needs and interests, and clarifies priorities. Establishing priorities helps the team focus on what is critical for the student to learn. New priorities may emerge when the student's progress is reviewed at a later date. It is important to consider the parents' and student's values and goals, and the contribution to the student's social and career development when choosing priorities for the IPP.

Individual Rating Scale (Sample)¹¹

Student's Name: _____		Key: 1 = No or Never ↑ 2 = Rarely Lowest Priority 3 = Maybe or Sometimes 4 = Usually Highest Priority 5 = Yes or Always ↓								
Team Member Name and Position: _____										
Date: _____										
Criteria for prioritizing										
Fill in Goals (in abbreviated form)	Is skill useful in immediate environment?	Is skill functional?	Would skill be used often?	Has student demonstrated interest?	Is success likely?	Is skill a prerequisite?	Will student become more independent?	Will student qualify for additional services?	Is behaviour dangerous to self or others?	Totals

The following steps can be used to develop a prioritized list of annual goals for the IPP.¹²

1. List and discuss a set of appropriate annual goals.
2. Determine the criteria against which to measure the importance of each annual goal. The following are examples of criteria for prioritizing annual goals:

- Will the student be able to use the skill in his or her immediate environment?
- Is it a functional, useful skill?
- Will the student be able to use the skill often?

- Has the student demonstrated an interest in learning this skill?
 - Is success in teaching this skill likely?
 - Is the skill a prerequisite for learning more complex skills?
 - Will the student become more independent as a result of learning this skill?
 - Will the skill allow the student to qualify for improved or additional services, or services in a less-restrictive environment?
3. Fill in the goals and the criteria using the Individual Rating Scale form. See page LD.242 for a blank form. Each goal is evaluated according to each criterion and is given a rating of 1 (lowest priority) to 5 (highest priority).
 4. Add up the numbers in each column and write the total in the corresponding box.
 5. List the goals from the highest-rated priority to the lowest, based on the total scores. Incorporate this list in the IPP as the top-rated annual goals.

^{11, 12} From "A Systematic procedure for prioritizing IEP goals," by Jill C. Dardig & William L. Heward. Reprinted with permission.

Maximizing Student Success

The overall goal of the program planning process is to maximize student success. Decisions regarding interventions, accommodations and services are best made by school-based student support teams that include parents, and where appropriate, the student. The nature of the intervention strategies, the extent of the accommodations needed, the type of services and resources required to deliver the student's program depend upon individual student needs. Differing combinations of services and accommodations can have similar results. Student needs, available resources, parent and student preferences, available local options, etc., can all affect the decisions and the program developed. The program planning process builds in regular follow-up evaluation to determine if the student is making progress.

Instructional and Accommodations Checklist

There are numerous modifications and/or adjustments that can be made to enhance the success of the student with learning disabilities in the regular classroom or in more specialized settings. Strategies related to various domains of functioning are presented in Section 3, pages LD.91–215. Individual needs guide the choice of interventions and accommodations. To support students with learning disabilities, teachers may consider modifications in the following areas:

- methods of instruction
- the task/response required
- materials
- organization for instruction in the classroom
- reinforcement systems
- testing methods
- ongoing evaluation procedures
- communication between home and school.

The instructional and accommodations checklist on the following two pages outlines various instructional/accommodation options to consider in planning supports to meet the needs of an individual student. The checklist can be useful during the classroom screening/planning stage, in student support team problem-solving meetings and in developing IPPs. It is a useful reference for the classroom teacher in planning daily lessons, and evaluation and testing procedures.

Instructional and Accommodations Checklist

Name: _____	School: _____	
Grade: _____	Date: _____	Completed by: _____

INSTRUCTIONS: Check (✓) the accommodations which will be implemented to adapt to the student's area of difficulty.

Methods of Instruction (general structure or content of lesson)

- ☐ Post daily schedules
- ☐ Vary amount of material to be learned
- ☐ Vary amount of material to be practised
- ☐ Vary time for practice activities
- ☐ Use advance organizers
- ☐ Allow previewing questions
- ☐ Cue student to stay on task; e.g., private signal
- ☐ Use student cueing (facilitate the student providing cues to the teacher)
- ☐ Repeat directions or have student repeat directions
- ☐ Shorten directions
- ☐ Pair written instructions with oral instructions
- ☐ Use computer assisted instruction
- ☐ Use visual aids in lesson presentation
- ☐ Other: _____

Task/Response

- ☐ Reduce or substitute required assignments
- ☐ Adjust level of in-class assignments to academic level
- ☐ Break long-term assignments into shorter tasks
- ☐ Adjust amount of copying
- ☐ Teach test-taking skills (multiple choice, T/F, matching)
- ☐ Use strategies to enhance recall; e.g., cues, cloze
- ☐ Allow student to tape record class lectures

- ☐ Provide student with a copy of notes
- ☐ Accept dictated or typed-in-class homework assignments
- ☐ Use performance contracts
- ☐ Provide extra assignment time
- ☐ Permit student to print
- ☐ Provide a student buddy for reading
- ☐ Give spelling of words/sentences in advance of weekly tests
- ☐ Provide a study guide
- ☐ Other: _____

Materials

- ☐ Modify textual materials (add, adapt or substitute)
- ☐ Use audiovisual aides; e.g., tape recorder
- ☐ Make materials self-correcting
- ☐ Highlight important concepts and information and/or passages
- ☐ Use a desk top easel or slant board to raise reading materials
- ☐ Prepare audiotapes of reading/textbook materials, tasks
- ☐ Allow student to have extra set of books at home
- ☐ Use checklists or cueing devices
- ☐ Allow use of personal word lists, dictionaries, thesaurus
- ☐ Allow use of calculators
- ☐ Allow use of word processor/spell checkers
- ☐ Increase use of pictures, diagrams, concrete manipulators
- ☐ Break materials into smaller task units
- ☐ Use materials cooperatively — specify required tasks

- ☐ Use graph paper for writing, mathematics
- ☐ Increase print size in photocopying
- ☐ Use daily homework assignment book
- ☐ Other: _____

Organization for Instruction

The student works best:

- ☐ In large group instruction
- ☐ In small group instruction
- ☐ When placed beside an independent learner
- ☐ With individual instruction
- ☐ With peer tutoring
- ☐ With cross-aged tutoring
- ☐ Using independent self-instructional materials
- ☐ In learning centres
- ☐ With preferential seating
- ☐ With allowances for mobility
- ☐ In a quiet space outside of classroom
- ☐ Other: _____

Reinforcement Systems

- ☐ Provide immediate reinforcement
- ☐ Give verbal praise for positive behaviour
- ☐ Use tangible reinforcers
- ☐ Send notes home
- ☐ Complete progress charts
- ☐ Give free time
- ☐ Allow special activities
- ☐ Instruct student in self-monitoring; i.e., following directions, raising hand to talk
- ☐ Other: _____

Testing Methods

- ☐ Adjust the test appearance; e.g., margins, spacing
- ☐ Adjust the test design (T/F, multiple choice, matching)
- ☐ Adjust to recall with cues, cloze, word lists

- ☐ Vary test administration (group/individual, open book, make-up tests)
- ☐ Tape test questions
- ☐ Select items specific to ability levels
- ☐ Vary amount to be tested
- ☐ Give extra test time
- ☐ Adjust readability of test
- ☐ Allow taped reports for essays and/or long answers
- ☐ Read test questions
- ☐ Allow use of a scribe
- ☐ Allow oral exams
- ☐ Other: _____

Evaluation

Vary grading systems for:

- ☐ Homework
- ☐ Tests
- ☐ Class discussions/participation
- ☐ Special projects
- ☐ Other: _____

Criteria for evaluation of student:

- ☐ Student is on pass/fail system
- ☐ Student is on an attendance, pass/fail system
- ☐ Credit given if work is commensurate with ability
- ☐ Other: _____

Communication (Home/School)

- ☐ More frequent updates to parents
- ☐ Parents will contact the teacher every _____ days/weeks
- ☐ Other: _____

Other Considerations

Use of Technology for Accommodation

Technology refers to a variety of tools that can assist teachers in delivering effective programs and can help students maximize their success toward reaching existing curriculum outcomes.

Technology can help students cope with and compensate for their learning problems, and can provide opportunities for acquiring new skills and knowledge. Through the use of technology, students can reach specific goals that might not otherwise be possible.

Tape Recorders

Tape recorders can be used to tape reading/textbook materials. Audiotapes provide students with an alternative to independent silent reading. Students should be encouraged to follow the print or to read aloud with the tape.

Listening to tapes for extended periods of time is difficult. To motivate students to listen carefully, introduce the material. Establish the purpose for reading and provide questions or activities based on the reading. Students should be encouraged to control the reading by rewinding the tape to look for specific information, stopping the tape to make summary notes of important points, noting how far into the tape the information required is, etc.

Use volunteers to make tapes. It is important to ensure tapes are of good quality and that the voice is clear, easy to listen to and expressive. The reading rate will vary according to the difficulty of the material and purpose of the tape. If students are expected to read along, slow the rate. See page LD.196 for guidelines on preparing tapes.

Tape classroom lectures. The teacher should operate the tape recorder during the lecture. Students should be encouraged to make summary notes from the tape. If students have difficulty writing notes, they may benefit from recording summary notes. These summaries can be used as study notes.

Tape assignments. Allow students to submit dictated assignments. Stress that organization, accuracy and complete sentences are essential elements of oral assignments.

Tape examinations. The exam questions can be put on tape and students may provide written or taped responses. Students need practice if tape recordings are to be a viable option to written exams. The testing situation should not be the first or only time students use tape recorders.

Video Recorders

Before using video recorders in the classroom, teach students strategies for making notes while watching and listening. For students who have difficulty writing, provide a framework or outline that includes the number of important items, the order of important items, key vocabulary words, etc. See note-taking strategies, pages LD.196–197.

Use video recorders as a motivational tool. Have students produce their reports on videotapes, as an alternative to written assignments. Teach students how to plan, organize and present videotaped assignments. Written outlines should be developed before taping is attempted.

Calculators

Calculators facilitate learning in many aspects of mathematics. They are used as a coping strategy for students who lack good memory and organization skills.

Pocket Organizers/Talking Spell Checkers

Pocket organizers may be motivational especially for older students. Many pocket organizers combine to-do lists, daily planners and basic word processing. They enable students to record notes and keep track of assignments and homework. Talking spell checkers not only allow students to check their spelling but also to hear what they have written.

Computers

Computers have the power to support teachers and students in acquiring, organizing, managing and displaying information. They enable students to work independently and concentrate on areas of learning difficulties.

- Computer assisted instruction (CAI) provides drill and practice which reinforce skill development in the academic domain areas. Drill and practice applications emphasize rote memory by providing repetition of concepts or skills previously learned.

The best CAI software for students with learning disabilities allows teachers and students to tailor the program by choosing the level of difficulty, the speed at which the drill can be conducted, and the amount and type of reinforcement and correction the student receives. It is important that the reinforcement for correct answers is stronger than for wrong answers. CAI is a non-threatening way to provide correction. Drill and practice programs should not be overused or students may get bored.

- Software programs can be used for information management. Database, spreadsheet and graphics programs enhance skill development in areas such as problem solving, thinking and research. For example, students can use database programs to organize information, spreadsheet programs to control and integrate data into graphs and charts, and graphics programs which offer painting, drawing, image enhancement and animation features to display information in more creative ways.

Students can also use CD-ROMS, which offer the advantage of print, sound graphics and animation all in one document and put thousands of images and topics at students' fingertips. *Wiggleworks*, available from Scholastic, is an example of a complete reading and writing program produced on CD-ROM. See page LD.289 for *Wiggleworks* annotation.

- Keyboarding is a valuable skill for students with learning disabilities. Although some students may have difficulty remembering where the keys are located and others, who have problems with reversal may continue to type "b" for "d," continued regular practice is usually the best approach. Fifteen to 20 minutes practice per day, three to four days per week, is sufficient to learn effective keyboarding. When appropriate, students with good keyboarding skills may take notes in the classroom using portable or lap top computers.
- For students who have difficulty with fine motor skills, word processing reduces some of the frustration associated with the mechanical aspects of writing. Word processors can be used as the writing tool to record ideas during brainstorming, initial planning and pre-writing stages. The first draft is easily created from the pre-writing activity by use of insertion, deletion and movement of blocks of text, allowing students to clarify, organize and sequence their ideas in written form. Drafts can be edited continuously, and expanded or condensed as required. Word processing programs offer spell and grammar checkers which let students proof their work for mistakes in grammar, style, usage, punctuation, spelling, etc. The ease of revision encourages students to focus on content and style. Producing polished drafts builds students' writing confidence.

It is important that word processing is used in conjunction with direct instruction where teachers provide direction in the writing process. Research indicates that word processors empower writers. Students' writing skills improve if they use a process approach to writing combined with a word processing program (Pearce-Burrows, 1991). Fluency in writing comes from repeated practice. For students to become effective writers using word processors, they will need additional access to computers outside of classtime.

Special Writer Coach is one example of a word processing program designed for students who struggle with writing. It allows the teacher to customize the program to individual student needs. The program promotes careful attention to detail and enhances proofreading skills. Programs with speech output, sound effects, large print, and a variety of fonts and graphics are motivating and provide an attractive product that students can edit by both reading and listening. See page LD.288 for *Special Writer Coach* annotation.

For further details about the use of word processors, see *The Writing Process: Using the Word Processor*, Alberta Education, 1988. See page LD.337 for bibliographic information.

- Making computer technology an integral part of the classroom redefines how students are given opportunities to maximize success. Access to the Internet allows students to inexpensively and instantly reach around the world.

Information on the Internet is often accompanied by appealing graphics, computer music and movies, which can make research interesting. Bulletin boards, CHAT areas and educational hubs, provide opportunities for students to post notes looking for penpals, meet other students with similar interests and abilities, and learn about different people, places and ideas. The extent to which students are able to access the Internet varies within each school.

School jurisdictions should develop a local philosophical base around which decisions will be made for selecting appropriate software. One journal, *Closing the Gap*, provides bimonthly reviews and articles on both software programs and hardware available for use with students with special needs. *Closing the Gap* is available from P.O. Box 68, Henderson, MN, USA, 56044. E-mail: info@closingthegap.com. Telephone (612) 248-3294; Fax (612) 248-3810.

Long Range Planning/ Transition Planning

Transitions Between Levels of Schooling

Transitions occur regularly for students, however Fraser (1994)¹³ identifies the following key transition periods:

- ECS to primary (Grade 1)
- primary to early intermediate
- elementary to junior high school
- junior high school to senior high school
- senior high school to post-secondary and/or world of work.

He defines transition practices as strategies and procedures that are planned and employed to ensure a smooth placement and adjustment to new programs and environments for students.

Transition involves:

- adapting to new students, adults and environments
- creating a bridge between the security and structure of the present program and the opportunities and risks of a subsequent environment. The bridge requires both a solid span and a secure foundation at the other end.

How well students are prepared and the help they receive along the way are critical to a successful transition.

Transition periods present challenges for all students. These periods are particularly challenging for students with learning disabilities because the changes may be combined with ongoing individual difficulties such as weak organization skills, poor self-concept, weak transference skills and possible gaps in basic skills.

It is important to have a clear history of interventions and accommodations available in student record portfolios. This ensures that previous strategies and accommodations can be tracked to provide direction when educators are looking at providing special provisions. A few changes students face during each transition period follow.

ECS to Primary (Grade 1)

This may not be a major transition but it can involve changes such as:

- increased time spent at school (can increase separation anxiety from parents)
- new situations: lunches at school, riding on a bus
- more than one teacher
- increased structure — sitting at desks, less movement, increased demands (the Grade 1 curriculum covers a wide range of skills and concepts). The student must learn to listen, concentrate and absorb a great deal of information and then apply this information to learning how to read and write

¹³ From *Transitions and career development: students with emotional and behavioral difficulties*, by G. Fraser. Adapted and reprinted with permission.

- increased demands on social skills — generally interacting with more students and adults.

It is important to prepare students for these changes before they enter Grade 1. Many ECS programs have small groups join Grade 1 classrooms for certain time periods to expose them to the new environment. Parents play an important role in all transition phases and should be included in all transition discussions. During this phase they can talk to the student about the upcoming changes, "play school," model some activities and structures the student will be exposed to and reassure the student about his or her ability to cope with the upcoming changes. It is normal for students to be unsure about the expectations at first. Parents also have a vital role when moving their children to different schools. Whenever possible, they can facilitate this type of transition if they provide the sending and receiving schools advance notice of the move. Six weeks is ideal.

Primary to Early Intermediate

This is a subtle transition that usually takes place between Grades 3 and 4. In some cases, the student may move on to a middle school and experience a less subtle transition. In this transition students may find:

- greater demands in terms of homework and written work; e.g., note-taking and reports
- a change in report cards (in some schools the upper elementary report card is based on marks, while the primary is based on mastery of concepts)
- more school-based activities such as clubs, groups, intramurals, that call for increased social competence
- increased independent work and self-directed work (need for help is not assumed)
- more self-monitoring, such as editing own work, planning assignments and generating own questions when reading for information
- greater use of text books.

At this stage, communication and collaboration between grade groups is important. The receiving teacher should be aware of the level of independence and skills that incoming students have, in order to plan for a gradual shift in expectations; e.g., research skills leading to a research paragraph, a page, then a report. Parents can provide support by increasing the amount of reading and writing they do with their children. They can help to structure consistent times for homework, studying and reading, by initiating family quiet times. These are times when everyone engages in a quiet activity, such as reading, balancing cheque books, writing letters, etc. so that this time is reinforced and modelled.

Parents should also be available to assist their children when they need help. This is a good time to begin a homework and study organizer. It should include a monthly calendar in which long-range assignments and exams are entered, as well as family or individual obligations, such as club meetings, family get-togethers, piano lessons, hockey. This can also be the point at which students with learning disabilities are provided with more information about their individual needs, learning styles and useful accommodations in order to prepare for increased self-awareness and self-responsibility for advocacy and learning.

Elementary to Junior High School

This is often one of the most difficult transitions for all students, especially students with learning disabilities. Some changes include:

- larger school to find their way around
- bigger classes, often with different teachers
- remembering the combination of lockers and locks
- options: having to make choices about courses for the first time
- greater demands for organization, such as moving from classroom to classroom, dropping off some materials and then organizing the new materials to carry to the next class
- basic skills in reading, writing, mathematics and study skills are assumed to have been acquired
- much higher expectations for independent work and study
- an increased emphasis on reading to obtain information
- in most cases the Grade 7 student is low person in pecking order and is exposed to an older and more experienced population
- dealing with adolescence which is stressful in terms of physical and emotional changes
- peer group tends to become extremely important, fitting in, acceptance, self-consciousness relative to the opposite sex and peers
- often more social demands which call for greater organization and discipline in developing times for homework and studying.

At this stage, it becomes even more critical for students with learning disabilities to be aware of and begin to self-advocate about learning styles, strengths, weaknesses and the strategies they have found to be effective. It is also critical, whenever possible, for teachers to know the needs and accommodations to put into place prior to the onset of the school year.

Parents can help their children anticipate the changes that might affect them most. They can brainstorm possible solutions or strategies that may be useful in coping in the new environment; e.g., What are you going to do to remember your new locker number? Write it on the inside cover of all your binders/keytabs. Give the number to a trusted friend.

Junior High School to Senior High School

Changes that occur at this transition level include:

- increased decision making about courses and programs, which involves some initial decision making about future careers and/or post-secondary options
- increased expectations for independent work habits and self-monitoring
- increased social/dating demands
- greater amounts of reading, writing and studying
- possible part-time job demands
- totally individual timetables, greater need for organization and independent structuring
- greater number of teacher specialists who may only see the student for one class. Teachers in senior high typically see over 100 students daily and classes can be larger than the student is used to.

By this stage, it is the responsibility of the student to apprise teachers of individual needs and accommodations. Self-advocacy and self-determination should now be a general goal. Counsellors, parents and friends may act as a support network but the student should be the main advocate. Grade 10 students may need assistance but the goal should be complete self-advocacy before moving on from high school.

Senior High School to Post-secondary and/or World of Work

Students with learning disabilities should have IPPs that include individual transition plans in order to prepare them for the transition from high school to post-secondary education or career options. This plan should include:

- short and long-term goals
- a focus on the development of self-reliance and self-advocacy
- appropriate preparation, implementation and follow-up for the transition
- collaborative planning with and commitment from all partners to problem solve and address the issues.

General Strategies for Sending and Receiving Educators

"Increasing numbers of students with learning disabilities are looking to post-secondary education and training to help them achieve success in career development and eventual job placement. Unfortunately, research suggests that many of these students are having difficulty staying in and completing post-secondary programs. A number of self-determination skills have been identified that are related to students making a successful transition to post-secondary education. These include stating one's disability and its impact on school performance, and identifying instructional accommodations and strategies for arranging those accommodations with their regular classroom teachers."¹⁴

For more specific information about post-secondary support services for students with learning disabilities, see Section 9, pages LD.322-324.

"Daily teacher practices can be applied in transition activities to prepare for transitions, link environments and facilitate student adjustments in new settings. By using valuable information already known about students and classrooms, teachers set the stage for easier transitions."¹⁵ The following are suggestions for sending and receiving educators, parents and students in order to prepare for transition movements.

- Gather as much information as possible about new sites, including descriptions of classes, programs, schools, school handbooks, required curricula, required textbooks, schedules, etc.
- Encourage student orientation sessions.
- Promote student and family visits to the new school to meet new personnel and have the student drop into the new class or program prior to exiting the former program.
- Share as much program data and information about the student's learning needs as far in advance as possible with the receiving school; e.g., IPPs, successful teaching strategies, strengths and weaknesses.
- Encourage students to write letters to their new classes or teachers sharing as much as possible about their current classes; e.g. interests, materials they are using, favourite subjects, how they are graded, etc.

¹⁴ From "Preparing high school students with learning disabilities for the transition to post secondary education: teaching the skills of self determination," by C. M. Durlak et al. Reprinted with permission.

¹⁵ From "Modifying daily practices to bridge transitions," by D. J. O'Shea. Adapted and reprinted with permission.

- Administrators can help facilitate transitions by arranging time for personnel from sending schools to meet with personnel from receiving schools. Sharing and comparing expectations, learning environments, program structures and teaching styles help identify areas of difference to be addressed in preparing for the transition.
- Assign homework, and teach study and organizational skills as ongoing daily practices to help students make the transition to more independent learning environments.

Examples

Example A, Sylvia, Grade 8

The following are examples of team approaches toward problem solving and program planning for individual students at three different levels of schooling.

Sylvia is in Grade 8 at Hillview Junior High School. She moved to the area two months ago from out of the district. Her language arts teacher is concerned about Sylvia's inconsistent achievement and frustration levels. Lately, she has become increasingly withdrawn in the classroom and assignments are not being handed in. The following steps were taken.

- The language arts teacher talked with Sylvia's other core subject teachers and evaluated Sylvia through classroom testing, observations, historical data and chats with her and her parents, who had many of the same concerns. Sylvia says the materials are "different" from her other school and not as "interesting."
- A referral to the Grade 8 student support team is made with the permission of Sylvia's parents and a team meeting is called. The student support team consists of Sylvia's core teachers, the learning strategies teacher,* the counsellor and Sylvia's parents. The team reviews all of the information from Sylvia's parents, teachers and records, and determines that they have sufficient information to attempt some initial problem solving.
- The team targets Sylvia's reading comprehension and writing difficulties as the main problems. They hypothesize that Sylvia's recent behaviours may be the result of frustration in dealing with the change of schools. This could be diffused by providing some individual attention and addressing her academic needs. After reviewing the information further, they establish that Sylvia has particular difficulty with writing assignments when asked to generate her own ideas and appears to have the most difficulty with inferential reading comprehension. The two subject areas most affected appear to be social studies and language arts.
- The team brainstorms possible interventions for meeting Sylvia's needs. An IPP was not considered necessary at this time. The team agreed on the following interventions:
 - encourage Sylvia to ask her teachers for assistance when she is experiencing difficulty
 - pair Sylvia with a study buddy to help her clarify her understanding of assignments and readings when she indicates that she needs help

* The title for this position varies among school jurisdictions.

- Sylvia will meet once a week with her homeroom teacher to review assignments and strategies that have been helpful for her
 - provide flexibility with timelines for the completion of written assignments and lengthy readings in social studies and language arts
 - recommend computer programs to Sylvia's parents (who own a computer and have asked for suggestions) that are designed to enhance reading and writing skills
 - provide Sylvia and her parents with suggestions for age-appropriate community activities that may interest her and help her adjust to her new peers and community.
- The team agreed to an informal check in two weeks to see if Sylvia's frustration levels lessened and to monitor assignments. There will be a more formal meeting between all team members in six weeks to review all interventions.

Example B, Brandon, Grade 3

Brandon is a third grade student at Rainbow Elementary School, who is described by his teachers as being a weak reader. His language arts marks in Grades 1 and 2 were lower than the class average and the teacher's comments indicated that Brandon struggled with reading and did not seem to enjoy reading for pleasure. Despite this, his writing skills are considered fairly average and he excels in subjects such as science and mathematics. In October of Grade 3, his teacher decided that a more in-depth investigation into Brandon's strengths and weaknesses in reading was warranted. The following steps were taken.

- Brandon's classroom teacher spent some time doing informal assessments of Brandon's reading skill and reviewed all relevant history. The teacher developed strategies to work with Brandon but his progress and frustration levels continued to be of concern.
- The teacher shared the results of her observations and assessments of Brandon's classroom work with Brandon's parents and referred Brandon to the student support team. The student support team met with Brandon's teacher and parents and reviewed the accumulated information. It was decided that more information was needed and asked Brandon's parents for written permission for further formal testing to determine the nature of Brandon's reading problems.
- Once the testing was completed by the school counsellor, a team meeting was set up with the counsellor, Brandon's parents, his classroom teacher and the learning assistance teacher to discuss the results of the testing, and brainstorm interventions and strategies. It was determined that Brandon's

overall reading level was significantly weak. Areas of specific strengths and weaknesses in learning and reading were reviewed. The team agreed that he should remain in the regular classroom, but that an IPP would be developed for him.

- The team implements the IPP. Rather than pulling Brandon out for special help in reading, the learning assistance teacher "pulled in" to the regular classroom to help Brandon. Reading buddies were assigned to Brandon for subjects such as social studies, science and mathematics to orally read text passages to Brandon when necessary. A number of modifications were provided for Brandon, including allowing extra time to complete tests and the option of oral tests in some subjects. He began a home reading program to practise his new reading strategies daily with his parents.
- In order to maintain the program, Brandon's classroom teacher and the learning assistance teacher met briefly each week to discuss Brandon's progress and strategies for instruction. As well, the classroom teacher and learning assistance teacher called home at least once every two weeks to update Brandon's parents on his progress. At specific two-month intervals, the school team met to monitor the IPP, assess progress and determine the next step of the intervention program. New goals were set as Brandon's reading skills improved.
- The team evaluated the program. By the end of the school year, Brandon had made gains in reading. Student support team members agreed that although Brandon was closer to grade level in reading, he would need extra support in maintaining and advancing these new skills. A special reading program was set up for Brandon to work through with his parents over the summer (maintenance).
- The following September, the student support team met with the new classroom teacher (transition) to discuss the program implemented over the past year, and to decide upon a direction for the new school year. The learning assistance teacher continued working with Brandon within the regular classroom and the other supports remained in place as well. It was then decided to gradually phase out the direct reading strategy instruction with the learning assistance teacher but to maintain the support systems for Brandon to allow him to manage independently in the regular classroom as much as possible.

By the end of Grade 4, Brandon was coping with the reading material at his grade level. He still requires some accommodations to assignments and tests. These modifications may be necessary for the rest of his school career. Brandon is confident in his ability in the regular classroom setting.

Example C, Jason, Grade 10

Jason is a Grade 10 student at Cedarvale High School. He is currently enrolled in Grade 10 diploma-level subjects but requires adaptations in most aspects of written language including note-taking, assignments and exams with written components. Jason's junior high counsellor contacted the school counsellor at Cedarvale in May to discuss Jason's needs for the fall and offered to send a copy of his IPP. Jason and his parents visited Cedarvale in June to meet with the new counsellor and to talk about the transition and new challenges Jason would be facing in high school. Jason also talked about the strategies and accommodations he found useful in his previous setting. The high school counsellor set up tentative times for a team meeting in early September so that Jason's needs could be reviewed with all relevant staff members. The following steps were taken.

- Once timetables were in place and staffing settled, the counsellor contacted various staff members to review Jason's strengths and needs, as well as the implications of these needs within specific subject areas. A team meeting was arranged between staff members, the school counsellor, Jason and his parents.
- Jason and his parents reviewed the accommodations and strategies that were useful in his previous setting (IPP). Each team member then reviewed the demands, expectations and possible concerns that could arise within specific courses. All members participated in developing a list of strategies and accommodations that would be realistic and acceptable in various subject areas.
- They agreed to the following accommodations:
 - Jason will make private arrangements with another student for reviewing and sharing of classroom lecture notes (with counsellor suggestions and support).
 - It is Jason's responsibility to arrange times to talk individually with his instructors if he is experiencing any difficulty with course demands or concepts. He must talk to instructors in advance of any assignment due dates to negotiate flexibility in timelines.
 - Jason is allowed the use of a portable word processor with spelling and grammar checks for note-taking, written assignments and written exams.
 - Extra time will be permitted to complete exams with any extensive written language demands.
 - Allowances will be made to complete certain essays and papers in point form to allow Jason to demonstrate his content knowledge.

- It was agreed that the team will informally discuss Jason's progress with him and the counsellor in three weeks. They will hold a student support team meeting again at the interim reporting period to discuss their evaluations and any further needs or accommodations. This meeting will replace the need for individual appointments at parent, teacher, student interview time.

Section ③

Strategies

Teachers can best meet the needs of diverse learners by drawing upon a variety of strategies and instructional practices. Effective teachers select strategies based on their judgments about the nature of the student, what the student can do, and what knowledge, skills and attitudes need to be addressed.

This section begins with general information on the components of a strategies lesson, learning styles, teaching styles and the mediational teaching style. To provide teachers with a starting point, the strategies are sorted by domain.

- Metacognitive Domain: includes strategies for metacognition, thinking, and study and organizational skills.
- Information Processing Domain: includes strategies for receiving, organizing, storing and retrieving information, and gross and fine motor skills.
- Communication Domain: includes strategies for auditory skills, language skills and language output.
- Academic Domain: includes strategies for reading, written expression, spelling, mathematics, science, social studies and using textbooks.
- Social/Adaptive Domain: includes strategies for self-esteem, prosocial skills and self-monitoring.

Selection and implementation of instructional strategies are ongoing processes. Because different strategies are designed to achieve different goals and to respond to different student needs, periodically reviewing strategies helps ensure a range of strategies is used.

Ultimately, the effectiveness of a strategy is measured by whether or not the student can demonstrate the knowledge, skills or attitudes expected.

[illegible]

Although this book includes a broad range of strategies, teachers will have many others to incorporate into their teaching. Additional information and strategies are provided in the *Programming for Students with Special Needs* series, Book 1 — *Teaching for Student Differences*.

All students can benefit from the strategies, tips and techniques in this book. Students may use the strategies in many classes during their school years and throughout their lives. The emphasis on metacognitive strategies is particularly important for students with learning disabilities who have difficulty in the flexible application of strategies.

Components of a Strategies Lesson

Preparation for Learning

- Assess and teach the pre-skills required to learn a new strategy.
- Brainstorm potential strategies for solving a problem. This provides opportunities to examine how students are approaching problems and gives them an opportunity to examine the effectiveness of their strategies. Modelling disorganized learning behaviours may be effective in eliciting better ways to organize information. When students are able to generate their own strategies, they are more likely to use them consistently and effectively than when strategies are provided for them.
- Give advance organizers.
- Describe the usefulness of the strategy.
- Give an example of when and where to use the strategy.
- Get a commitment to learning the strategy.

Teaching the Strategy

- Describe the strategy.
- Model the steps in the strategy.
- Teach the steps in the strategy (Note: If the strategy is complicated and has many steps, it may be most effective to break it down over lessons, providing modelling, rehearsal and practice of one step at a time).
- Tell students the rationale for each step while modelling it.
- Ask students questions about the strategy.
- Have students rehearse the steps.
- Have students practise using the strategy in a variety of situations.
- Provide specific feedback during guided practice.
- Discuss the importance of the strategy.
- Give cues that the students can use to identify when to use the strategy.

Integration and Application

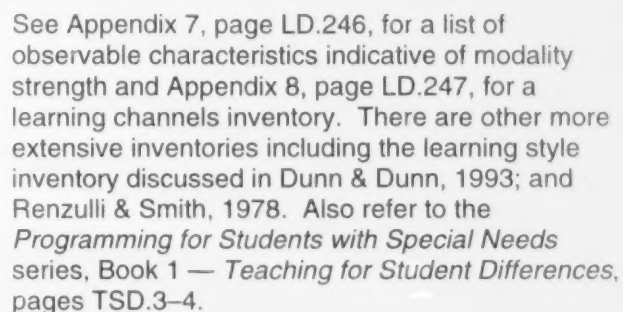
- Perform the strategy with students.
- Prompt students to use the strategy.
- Review cues students can use to identify when to use the strategy.
- Review the steps in the strategy.
- Continue to have students perform the strategy and prompt until they are accurate.
- Continue to provide specific feedback.
- Tell teachers, parents and teaching assistants how to use the strategy.
- Give assignments that will require the use of the strategy.
- Monitor students' use of the strategy.

- Have students report on situations where they have used the strategy.
- Provide a review lesson on use of the strategy.
- Discuss how this strategy will relate to the next strategy, to build in continuity and generalization.

All incoming information is received through the senses — sight, sound, touch. Students may have preferences for a particular sense:

- visual — learns best by seeing, watching demonstrations or videos
- auditory — learns best by listening, through verbal instructions from others and/or self
- kinesthetic — learns best by doing, by being directly involved
- combination — no particular preference, combines two or three styles or switches between them depending on the situation and material to be learned.

Acknowledging, understanding and accepting the concept of learning styles can lead to responsive instruction where teachers provide a wide variety of lessons, use a broad range of strategies, activities, and types of assessment materials and methods.



- Use a multimodal approach in which lessons are taught with a variety of approaches and activities to accommodate all students. This may be the most effective way to meet individual needs within a larger grouping. Activities that accommodate specific learning modalities are provided on the following page.

**Visual**

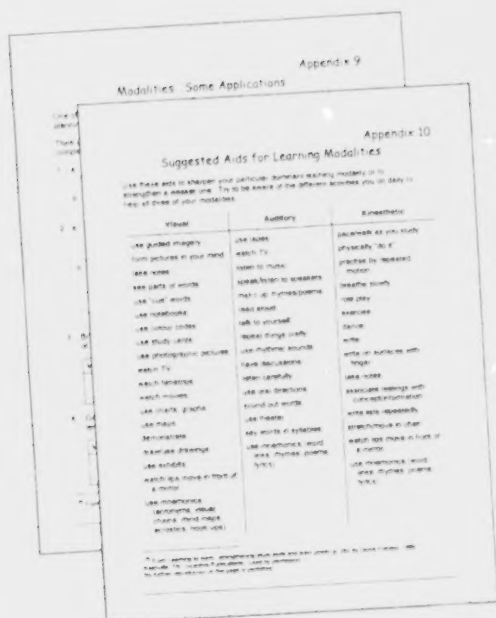
videos
mind mapping
painting
timelines
diagrams
filmstrips
overhead
transparencies
slides
charts, graphs,
maps, pictures
displays
computer graphics
visual clues for
verbal directions
exhibits
note-taking
models
microscopes

**Kinesthetic**

labs
creative movement
diorama
dramatization
experiments
puppetry
demonstrating
constructing
collecting
games, puzzles
manipulatives
field trips
drawing
mime

**Auditory**

panel discussions
class discussions
oral directions
story telling
direct instruction
choral reading
debates
tape recordings
interviews
music
readers theatre
lectures
songs
reading aloud



The form included in Appendix 9, page LD.248, may be used to assist teachers in planning lessons or units to accommodate the different ways students learn. Appendix 10, page LD.249, includes additional ways to sharpen a particular dominant learning modality or strengthen a weaker one.

- If the student is experiencing difficulty learning new concepts or material, the teacher could ask:
 - Was there a predominant modality in which the material was presented?
 - What is the student's preferred learning style?
 - How could adaptations be made for an individual or a small group?

Following this, re-teaching using a variety of practice activities that support a student's preferred learning style may help to alleviate the difficulty.

- Base reinforcement on preferred learning styles:
 - Visual: certificates, positive written comments, a private visual signal (thumbs up)
 - Auditory: verbal praise, time at a listening centre (a story or five minutes of music)
 - Kinesthetic: a pat on the back, a "high five," an arm around the shoulder, time at a clay or sculpture centre.

- Break long classes into separate sections with predictable patterns, including interesting activities for involving students. Some alternatives are cooperative learning groups, independent investigation, out-of-class experiences such as meaningful field trips and peer tutoring.
- Have students teach peers who are experiencing difficulty. Match the pairs on the basis of a shared learning style. When a student teaches another student a concept or skill, the teaching student often realizes new insights into his or her own learning as well as mastery of the concept or skill being taught.
- Accommodate diverse learning needs in a classroom through flexible physical arrangements which include areas for individual work, group work, activities and learning centres. Mobility may be especially important for some students. Although it can be difficult within the confines of a conventional classroom, reasonable freedom to move around can be provided even in that setting. The classroom arrangement will vary according to:
 - the physical facility
 - the availability of resources
 - the developmental level, characteristics and learning needs of the students
 - the availability of support personnel
 - teaching styles
 - environmental factors; e.g., sound, light, temperature, colour, etc.
- Teach students to identify their preferred learning style and to apply that style while studying; e.g., reading notes aloud, mind mapping, role playing, studying in a quiet location, while listening to music or while snacking.
- Encourage students to reflect on the effectiveness of their selected study strategies and to modify their strategies as needed.
- Teach students compensatory strategies; e.g., those who have difficulty attending to verbal information can learn to take notes, mind map or draw important information while it is being presented orally.

Teaching Styles

This chart illustrates teaching styles which recognize that students vary in their need for structure and in their ability to be self-directed in their learning. The chart illustrates a progression in which the teacher's style allows students to take a greater role in directing their learning experiences.¹⁶

Formal Instruction	1. Command The teacher provides formal instruction, controls the decision making and students merely respond correctly at the proper time. While this style is not conducive to helping students become self-directed learners, it is the best style for some students; e.g., Do page 36, questions one to eight in your mathematics text to practise the skill of long division.
Formal Instruction	2. Task The teacher provides formal instruction, begins to offer choices for students and organizes the classroom so that several different activities may occur at the same time. Centres may be used and choices should be available in each centre. Making choices and decisions is a necessary skill for independent learning; e.g., You have several choices for practising the skill of long division: page 36, any two of the first five, any three of the next five and any four of the next 10 questions in the mathematics text, or problem cards, or . . .
No Formal Instruction	3. Peer-Partner The teacher provides students with the opportunity to learn from one another by working in pairs. Students must be compatible to maximize the benefits of the interaction. They begin to individualize their own learning. This requires students to talk, share and experience the instructional process as initiators of instruction, not merely as recipients; e.g., Work with a partner to practise the skill of long division.
No Formal Instruction	4. Student-Teacher Contract The contract is designed by the student, with some discussion and direction from the teacher if necessary. Here, students are beginning to individualize their own learning; e.g., Complete the contract and sign it, showing how you will practise the skill of long division.
No Formal Instruction	5. Self-Directed Independent or self-directed learning occurs when students begin to initiate plans for their own learning. Students decide how they are going to learn the material, develop and create their own products and projects, create problem-solving, extension or enrichment activities; e.g., Develop your own plan which will show how you will practise and demonstrate your knowledge of long division.

¹⁶ From a book in progress, *Teaching in style*, by D. Green. Adopted and reprinted with permission.

Mediational Teaching Style

Particular qualities of the interaction between teachers and students can enhance students' awareness of their own thinking and promote the acquisition of cognitive and metacognitive strategies. A mediational teaching style, originated by Haywood, Brooks & Burns (1992), can promote more effective thinking. The teacher acts as mediator between the student and the student's experiences to help the student understand the meaning of these experiences, to organize what is being learned and to generalize the learning to new situations. This teaching style emphasizes how one teaches (process) as well as what one teaches (content). Techniques of mediational teaching follow.

- Ask process questions to help students focus on their own thinking processes; e.g., What do you have to do here? How do you think this student is feeling? Why is this one better? How will you remember to _____?
- Help students bridge their thinking processes to other settings and new situations; e.g., When is another time you need to use this kind of thinking? Where else have you seen _____? Where else could you use this type of plan?
- Challenge students and ask them to justify their responses. Ask for clarification of correct answers as well as incorrect; e.g., Yes that's right, but how did you know it was right? What did you think about to get that answer?
- Teach students rules to assist with generalization; e.g., Can we make a rule about how to do this kind of problem? How does this rule help us?
- Emphasize order, predictability, systems and strategies. The following questioning can encourage a systematic approach to problem-solving.

Define the problem	What do you think the problem is? What do you do here?
Analyze the problem	What are the parts and which are the important ones?
Relate new to familiar	When have you seen something like this before? What have you done before to help you solve a problem like this? Do you remember the rules for this _____?
Make a plan	Let's make a plan so we don't miss anything.
Emphasize sequence	What do you need to do first? What do you need to do next?
Carry out/monitor	Is it working? Why? Why not? What other approaches could you try?
Evaluate/congratulate	You did it! You looked carefully and you found the right one! You followed your plan and you solved the problem.

Dr. A. Price¹⁷ states that good mediators also:

- communicate enthusiasm for learning
- share participation in the learning process with the student
- regulate behaviour; e.g., discourage impulsive responding or encourage reluctant responders to participate
- use task-intrinsic incentives; e.g., the privilege to choose a more challenging problem
- relate new to familiar
- ask rather than tell
- elicit answers through questioning
- give specific feedback
- model thinking (think aloud)
- ask questions that require students to demonstrate their thinking
- use a problem-solving approach to behaviour management
- plan and summarize
- teach students to be mediators.

¹⁷ From Dr. A. Price. Reprinted with permission.

Tips ➔

for Teaching Students with Learning Disabilities

- Learn all you can about learning disabilities.
 - Maintain a warm and supportive emotional climate.
 - Be organized and consistent. Maintain an organized classroom with predictable schedules.
 - Be specific, consistent and systematic in expectations and actions.
 - After giving directions, have students repeat them aloud.
 - Allow short answers to questions.
 - Preface all remarks with a title or the main idea of the lesson.
 - Provide a focus on important points during a lesson. Say, for example, "Listen carefully," or, "This is important."
 - Change the volume and tone of your voice to emphasize important points in the lesson.
 - Check for recall and understanding immediately after teaching an important concept by asking, "What did I say?"
 - Vary presentations so that both written and visual components are included.
 - Set concrete standards. Work on one area at a time.
 - Reduce the amount of printed or written work.
 - Allow students to take tests using different formats.
 - Allow more time for tests.
 - If homework is important to your program, keep in mind that too much can overwhelm the student with learning disabilities.
 - Modify grades and report cards to reflect the individual student's level of improvement.
- All the above are taken from Winzer.¹⁸
- Be aware of your own and your students' learning styles.
 - Be aware of the student's relative strengths.
 - Let students know you are interested.
 - Use a visual reference of your schedule; e.g., a planning board, list of activities.
 - Involve students in planning the day or the lesson to clarify expectations and model organizational and prediction skills.
 - Teach students to organize their materials and assignments. Use lists to establish work priorities.
 - Teach study skills and goal setting.
 - Choose seats for students that reduce distractions. Consider classroom traffic patterns and proximity to active students, teacher's desk, windows, learning centres, etc.
 - Read orally to the class in order to provide pacing and ensure better understanding.
 - Encourage students to use their own words to avoid "parroting."
 - Give clear and concrete directions.
 - Provide a visual reference of key steps and their sequence.
 - Be aware of the importance of modelling and demonstrating to ensure understanding of directions.
 - Help students think through steps in completing a task. Use questions as a guide; e.g., How much time do you have to complete a task? What materials will you need? Who can you ask for help?
 - Assist students in setting personal goals; e.g., This year I want to learn to _____. The most important things for me to learn for this exam, lesson, etc. are _____.
 - Break written work into sections or manageable parts.
 - Emphasize the quality of ideas and perseverance in written work rather than initial attention to spelling and handwriting errors.
 - Provide emotional support to help ease the frustration of a learning disability.
 - Be liberal with praise, but make it honest and specific so that students understand what they are being praised for.
 - Ask students what adaptations work for them.

¹⁸ From *Children with exceptionalities: a Canadian perspective*, by M. Winzer. Adapted and reprinted with permission.

Metacognitive Domain

Strategies for enhancing students' metacognitive skills have been outlined by several researchers (Fusco & Fountain, 1992; Barell, 1992; Costa, 1984).

They include:

- Wait 5–10 seconds before asking students to respond to questions. This allows them to gain control over their thoughts. Some students may benefit from a cue to indicate they are about to be called on. This gives them time to prepare an answer and avoids putting them on the spot.
- Ask metacognitive questions to prompt students to develop their own self-regulation for learning, for example:
 - How am I going to remember my lunch, my homework?
 - How did I remember that yesterday?
 - How can I make sure I understand what I am reading?
 - How is this important in science?
 - How do I think I did on this test? (Estimate my score.)
 - Does this answer make sense?
 - Is this my best work?
 - What can I do to get it into my memory?
 - What questions do I have?
 - Do I understand this well enough to teach it to my buddy?
 - Why am I doing this?
 - Why do I think I got a poor score on this paper?
 - Why did this reading selection give me trouble?
- Use metacognitive questions as the basis for thinking journals, where students can reflect on their learning over time, in a variety of learning situations. For example, How can I use this strategy or information in the future? Do I need more review of this information? How can I organize the information to remember it better? Thinking journals can also form the basis for self-assessment.
- Remember metacognition is an integral part of the problem-solving process. Good problem-solving strategies include:¹⁹ understanding the question/problem; developing research questions and procedures; gathering, organizing and interpreting information; and developing a conclusion/solution. Students benefit from a general framework to guide them through the problem-solving process:
 - What is the question/problem?
 - What do we know? What do we need to find out? Where can we find the information?
 - How can we organize the information? What is the information gathered telling us?
 - What have we learned? What conclusions can be drawn?

¹⁹ From *Social studies teacher resource manual: grades 4–6*, by Alberta Education. Reprinted with permission.

Teachers may wish to post problem-solving steps on a chart in the classroom. The addition of pictures or the use of an acronym may help students remember to use the steps.

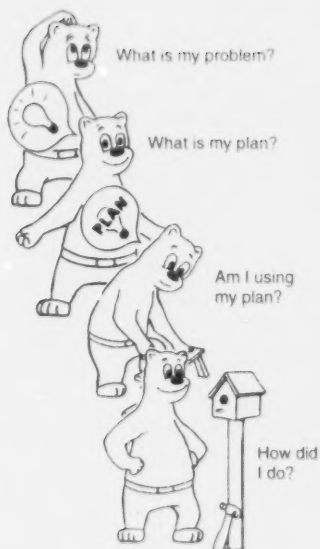
The following chart conveys information about a problem that students encounter, how they attempt to solve the problem, and the results of the attempt to solve the problem. See Appendix 11, page LD.250, for a full-size reproducible form.

Problem-solution Text Structure: Frame and Definition ²⁰	
Problem of _____	
Action	Results

Problem = something bad; a situation that people would like to change

Action = what people do to try to solve the problem

Results = what happens as a result of the action; the effect or outcome of trying to solve the problem



- Use the Think Aloud²¹ process to teach students to ask themselves four questions to guide problem solving. This organizes students' thinking and promotes verbalization as they answer the sequenced questions.

1. Define the problem.
What is my problem? What am I supposed to do?
2. Consider alternatives and make a plan.
What is my plan? How can I do it?
3. Monitor the plan.
Am I using my plan?
4. Evaluate the plan.
How did I do?

²⁰ From "Teaching test structure to improve reading and writing," by B. B. Armbruster. Reprinted with permission.

²¹ From *Think aloud: increasing social and cognitive skills — a problem solving program for children: grades 1–2*, by B. W. Camp & M. A. S. Bash. Adapted and reprinted with permission of authors.

Model a think-aloud process when solving a complex task; e.g., a mathematical word problem. Students can hear and see the steps involved. Encourage students to think aloud as they complete a similar activity. This can often indicate where the thinking behaviour is breaking down. Students can use tape recorders to record the process.

For some activities, encourage students to work with a peer partner and think aloud while doing so. Partners can learn, practise steps in a process and get immediate feedback on their results. When students are paired to solve a problem, one can be the problem solver and the other a listener/facilitator. The problem solver verbalizes everything he or she is thinking about while solving the problem. The listener listens, asks questions and encourages the partner to talk. This process allows students to observe their partner's "attack" strategy and can enhance the problem-solving skills of both. An example follows.

Problem Solver: (reads problem aloud): How many chairs are in the auditorium if there are 15 rows with 15 chairs in each?
OK, I have to find out how many chairs there are altogether.

Listener: Why not draw a picture?

Problem Solver: OK, I need to draw 15 rows with 15 chairs in each row.

(begins to draw) h h h h h h h h h h h h h h h h
h h . . .

Listener: (interrupts drawing) Do you see a pattern?

Problem Solver: Yes, it is a pattern kind of problem — I need to multiply!

Listener: So what do you do next?

Problem Solver: I go 5×5 is 25, write down the 5 and carry the 2. 5×1 is 5 plus 2 to carry is 7. Next row, start with a zero. 1×5 is 5. Write it down. 1×1 is 1. Write it down. Now add the rows . . . 5, 12 . . . write 2, carry 1. 1 plus 1 is 2. The answer is 225.

Listener: Is there another way to solve it?

Problem Solver: Well, I could finish drawing the picture and then count the chairs but that would take awhile. Wait! I could square 15. That's the same answer and it's even faster than multiplying.

Listener: I agree that 225 is the correct answer. Good work!

15
$\times 15$
75
$\overline{150}$
225

Students who have difficulty with the multiplication process could use a calculator and still think aloud as they go through the steps and record their responses.

Thinking Strategies

- Form cooperative groups to allow students to verbalize their thoughts with others. Groups provide an opportunity for refining thinking, learning new ways of approaching problems and building on the ideas of the group.
- Teach self-assessment and goal setting to allow students greater control of their own learning and thinking. See pages LD.109–110 for examples of goal setting.
- Provide students with instruction on finding and correcting errors in their work. This is a first step in developing self-monitoring skills.
- Paraphrase and label student behaviour to give students specific vocabulary and descriptions of the skills they are using; e.g., What I see you doing is . . . What you're telling me is . . . When you used your story map, I saw it helped you follow a plan. When you followed your checklist, you didn't miss any steps.

Thinking skills influence performance in academic areas. Thinking skills can be taught and may result in immediate improvement in academic performance. Because thinking skills are applicable across grade levels, across subject areas and to life outside of the classroom, they are important life skills. Strategies for teaching thinking skills follow.

- Use brainstorming to generate a wide variety of ideas and solutions on a topic or theme. It is important to produce many ideas and to withhold judgment. Lists of ideas can be kept for further expansion. Through brainstorming, students are exposed to creative thinking and learn that their contributions are accepted and valuable. Brainstorming also allows students to see that there is more than one way to solve a problem.

Brainstorming ideas may be organized using strategies from *de Bono's Thinking Course*.²² CAF (Consider all factors) is an attention-directing tool used when making a decision or thinking about something. The emphasis is on, "What has been left out?" and "What should we consider as well?" After all factors are generated, they can be organized in order of priority following the FIP (First Important Priorities) strategy.

When brainstorming content/prior knowledge, demonstrate organization and classification strategies by organizing ideas into categories. Demonstrate how labelling categories can provide cues for remembering the information.

²² From *de Bono's thinking course*, by E. de Bono. Reprinted with permission.

- Focus on process as well as content by using a mediational teaching style. See pages LD.98–99 for more on the mediational teaching style.
- Increase the wait time after questioning to encourage higher-level thinking and to increase the number and length of student responses.
- Encourage student questions. Allow students to follow-up their questions through research or discussion; e.g., I wonder how we could investigate that question.
- Encourage students to use visualization to link and create meaning. See page LD.131 for a social studies visualization example.
- Model higher-order thinking and questioning skills.
- Nurture reflection. Encourage students to think about their thinking.
- Use a questioning technique (Cogitaire) that encourages students to reflect on their thinking.²³

When students say:	Speak <i>Cogitare</i> by saying:
The answer is 20 kilograms.	Describe the steps you took to arrive at that answer.
I don't know how to solve this.	What can you do to get started?
I'm comparing . . .	What goes on in your head when you compare?
I'm ready to begin.	Describe your plan of action.
We're memorizing our poems.	What do you do when you memorize?
I like the large one best.	What criteria are you using to make your choice?
I'm finished.	How do you know you're correct?

²³ From *The School as a home for the mind*, by A. Costa. Reprinted with permission.

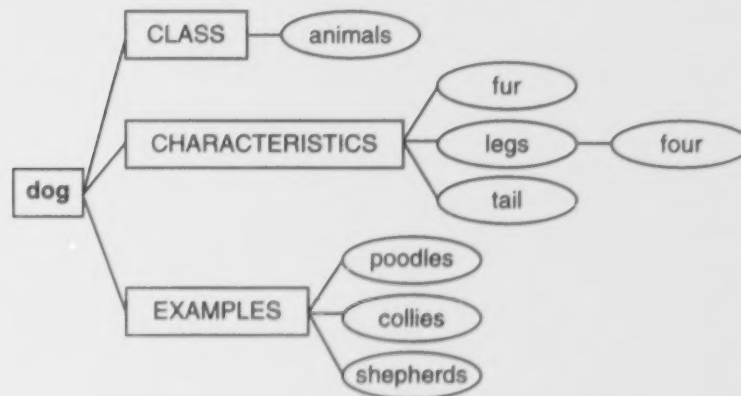
- Use de Bono's PMI,²⁴ a thinking tool to direct attention deliberately in one direction (Plus), then another (Minus) and finally toward interesting points. The "I" or interesting element can be used to collect all those points and comments which are neither positive nor negative. It encourages the deliberate habit of exploring other ideas and it trains the mind to react to interesting aspects of an idea.

Plus	Minus	Interesting points

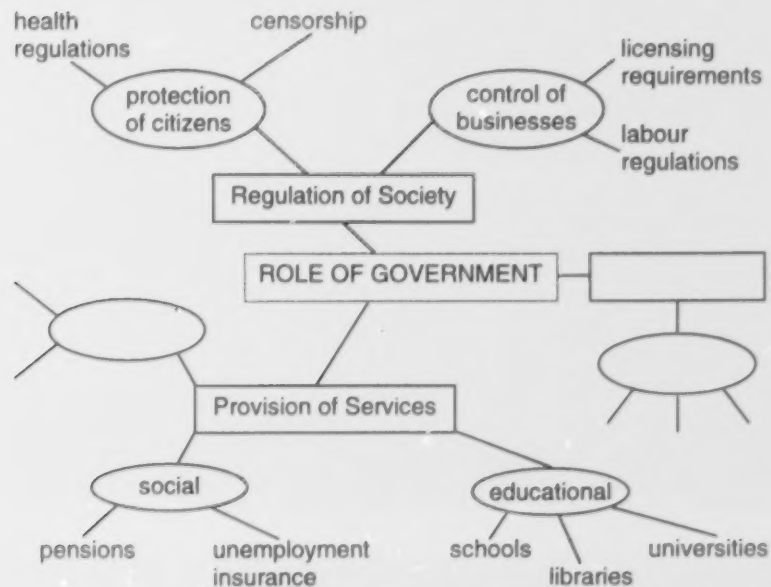
- Make lists of problem-solving behaviours to post in the classroom or for students to keep for reference; e.g., when I come to an unknown word, I can:
 - skip it and read on to the end of the sentence
 - try to figure out what would make sense
 - reread with hypothesized word. Does it make sense? Does it sound right?
- Provide practice in making predictions in mathematics, in a story, in a science experiment. Students must be prepared to defend their hypotheses/predictions. Why do you think this will happen? How do you know? Who agrees/disagrees? Why?
- Make comparisons between objects, classes, concepts, definitions; e.g., How is the circulatory system like a train set? How are they different?
- Guide students to look for patterns in everything. Organizational patterns of information can be presented and depicted graphically. Webbing or mind mapping can depict a basic concept or theme with supporting main ideas and detail. These graphic organizers provide a framework for comprehension by visually illustrating relationships among key concepts.

²⁴ From de Bono's thinking course, by E. de Bono. Reprinted with permission.

A concept can be developed by considering the class to which it belongs, properties or characteristics, and examples.



A broader theme or unit of study can be illustrated with the main idea or topic, category sub-headings, supporting details and examples. Relationships among concepts and vocabulary are illustrated.²⁵



- Provide open-ended questions or problems to stimulate creative/divergent thinking; e.g., List 15 uses for a coat hanger.

²⁵ From *Interim teacher resource manual: social studies 10 and social studies 13*, by Alberta Education. Reprinted with permission.

- Synthesize information into a new form; e.g., Combine a character from one book with a character from another book and create an adventure.
- Practise decision-making skills, e.g., In what part of Alberta would it be most desirable to live? Support your answer.
- Use Venn diagrams to show common characteristics or points of overlap, and distinctive aspects of concepts.
- Consider alternatives; e.g., There is not a single correct answer for this question. I want you to generate as many alternate answers as you can.
- Try not to rescue students and solve problems for them. Instead ask, "How could you solve that problem?" If students are having difficulty finding solutions, help them generate alternatives. Leave the choice with the students. Often, students will choose a solution the teacher may not believe will work, but students need opportunities to try and evaluate their own problem-solving processes. Later, ask, "How did your solution work?"
- Utilize think-pair-share as a strategy: allow for individual thinking time, time for discussion with a partner, then time for whole group discussion.

For more ideas on teaching thinking, see Alberta Education's *Teaching Thinking, Enhancing Learning: A Resource Book for Schools ECS-Grade 12* (1990). See page LD.291 for annotation.

Study and Organizational Skills

Study and Organizational skills are:

- an integral part of the curriculum
- learned by doing and active participation
- developmental in nature
- taught in natural progression from simple to complex
- essential for most students with learning disabilities. Parents and educators should begin to encourage, facilitate and teach these skills as early as possible.

The following are strategies to assist students with goal setting, time management, organization, note-taking, studying and taking exams.

Goal Setting

Goal setting facilitates a realistic personal awareness of strengths and needs, and helps students to stay focused, persistent, committed and motivated.

Central to the development of student goal setting is a classroom climate in which the teacher indicates a willingness to give personal choice and responsibility to students. Risk taking is fostered; students set their own goals and make "mistakes" as they learn. Adjusting goals is valued as a product of regular self-examination.

Introduced in everyday situations, the goal-setting process is modelled, charted and discussed. The goal-setting process includes:

- setting goals and planning strategies
- monitoring, reflecting, evaluating
- adjusting or setting new goals
- celebrating successes.

To be most effective, goals are:

- "I" statements in the positive, such as "I will," rather than "I'll try"
- measurable
- specific
- reasonable and attainable
- attainable over a set time, short or long term.

Frequent, consistent opportunities for students to engage in the complete goal-setting process will make them more responsible for and engaged in their learning. The following are examples of whole class or individual opportunities to engage students in goal setting.

- Discuss a playground or classroom problem and have the class set and chart related goals. Progress is monitored and goals are adjusted as necessary.

- Routinely incorporate goal setting into a subject area. For example, discuss and set personal goals at the beginning of a research project, follow up regularly and provide reflection time at the end of the project. Many formats and forms for student goal setting are available for use in behavioural, project, study, daily or weekly goal setting.
- Have students discuss goal stories in daily think-pair-share sessions. See page LD.108 for the think-pair-share strategy.

- Have students evaluate and monitor their own progress in a weekly review. See the samples in Appendix 12, pages LD.251–252.
- Recognize the daily successes of students who are easily discouraged. Graph daily basic facts timed tests. See Appendix 13 and 14, pages LD.253–254 for samples of graphing. Use timers to assist in setting goals and seeing results; e.g., How many mathematics facts can be completed correctly per minute?
- Use Individually Guided Motivation,²⁶ an instructional program in which students meet on a regular basis with their teachers to set specific, measurable goals and priorities of the week, the month, the term, etc. At the next goal-setting conference, the teacher and students discuss the attainment of goals and set new goals for the next time period. During these meetings, the teacher

encourages students to set ambitious but realistic goals and praises them for setting and achieving their goals. This strategy could be modified to include a student review of previous and potential goals with parents prior to the teacher meeting. It is often helpful to include the student's parents so that they are aware of the student's goals and plans.

- Use daily journals for setting goals and maintaining daily commitment. They allows students to reflect on their achievements. Provide sentence starters to assist students; e.g., A goal I'm working toward is . . . Teachers should provide immediate and frequent feedback and motivational challenges for students.

²⁶ From *Educational psychology: theory into practice*, by R. E. Slavin. Adapted and reprinted with permission.

Time Management

Students may have difficulties with the awareness of time and the management of time. In order for students to become effective, independent learners, they need to learn to manage their time by deciding what is most important for them to do, judging how long it will take and deciding where and when to do it. Some suggestions for developing and maintaining time-management skills follow.

- Use time management charts. Have students fill in a detailed account of their time for at least one week. This will help them develop an awareness of how much time is used for their daily activities. They could also determine which times might be best for homework and studying, and what times would not be as good. Examples of time management charts are presented below and on the next page.

Time Management Charts

Time	Monday	Tuesday	Wednesday	Thursday	Friday
7:30-8:00	Up & dressed	Up & dressed	Up & dressed	Up & dressed	Up & dressed
8:00-8:30	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast
8:30-9:00	Go to school	Go to school	Go to school	Go to school	Go to school
9:00-4:00	School	School	School	School	School
4:00-4:30	Snack	Hockey practice	Snack	Snack	Friend's house
4:30-5:00	Math homework	Hockey practice	Watch TV	Study science	Friend's house
5:00-5:30	Piano Lesson	Hockey practice	Social project	Spelling	Friend's house
ETC.					

Once the above chart is filled in, students can total the hours allotted to their activities.

Activities	Monday	Tuesday	Wednesday	Thursday	Friday
Homework & Studying					
Recreation, Lessons, etc.					
Sleep					
Eating					
Travelling					
Chores					

- Develop planning charts to help students allot the amount of time needed to complete tasks. The following charts are helpful for self-monitoring. The first chart outlines the steps for completing a single long-term assignment. The second chart involves organizing a number of tasks to be completed within a week.

Time Management Checklist (Single Task)

Task: A written report and presentation — both due Tuesday, March 21			
	Required Time	Date	Completed
Pick topic	1 hour	March 8	✓
Library research	2 days	March 9–10	✓
Combine notes	2 hours	March 11	✓
Write final report	2 days	March 13–14	
Practise presentation	20 minutes for 5 days	March 15–20	
Presentation and report		March 21	

Time Management Checklist (Multiple Tasks)

Name:			
Week of: October 14–18			
Assignment	Date Due	Day and Approximate Time Required	Completed
Social studies questions	Tuesday	30–45 minutes Monday night	✓
Math unit test	Thursday	3 x 30 minutes Monday Tuesday Wednesday	✓
Science quiz	Friday	2 x 30 minutes Tuesday Thursday	✓
Language arts poem	Friday	2 x 20 minutes Wednesday Thursday	✓

- Use timers for reinforcing time awareness. They can be used for homework in the evening and during tests to help students estimate how long each task or question will take and plan their time wisely. Teachers can use timers as signals in the classroom to help students become more aware of the length of time remaining. "You have until the bell rings to review your social studies notes," or "There are 10 minutes left until your art project must be turned in."

- Use academic calendars, planners, daytimers. Students should listen carefully when the teacher gives an assignment, record an entry for the assignment on the date due, check the calendar regularly to determine which assignments are due and check off completed work. For older students, using an electronic pocket organizer may be motivational.

The following strategies for time management are adapted from Fleet, Goodchild & Zajchowski.²⁷

- Plan ahead. Anticipate busy times. Write down deadlines and scheduled activities in advance in a daytimer or calendar. Spend a few minutes each day or week thinking about the various activities that are approaching.
- Write things down. Use daily lists or schedules to remember upcoming events or tasks.
- Make each day count. Set goals to complete high-priority tasks. Remember that small, regular bites will make "big holes" in the total amount to be completed.
- Know and use best times. Think about the best concentration times. Use these times for concentrated studying and other times for less-important activities.
- Use small blocks of time. A great deal of learning can be accomplished in an hour or less: reviewing notes, reading part of a chapter, doing a few problems.
- Plan for meals and recreation. It is equally important to maintain a healthy lifestyle. Nutrition, exercise and relaxation/recreation all contribute to the ability to study better.
- Establish a regular routine. Studying can become more automatic when study tasks are slotted in the same time slots each week. This reduces the amount of energy required for making day-by-day decisions.

Organizational Skills

Students with learning disabilities are often disorganized learners. They benefit from direct instruction, modelling, classroom routines and structures which emphasize organizational strategies.

- Provide short, clear and consistent rules and expectations so that students are aware of them from day one; e.g., due dates for assignments — is there any leeway?

²⁷ From *Learning for success: skills and strategies for Canadian students*, by J. Fleet et al. Adapted and reprinted with permission.

- Teach students ways to organize their notebooks. Have students use individual notebooks or sections for each subject area organized within a three-ring binder. See page LD.116 for tips on organizing notebooks.
- Colour code notebooks with a coloured dot or label, etc., or have different coloured notebooks to provide quick access to various subjects.
- Have students put their papers in the proper places as soon as they are finished.
- Have periodic binder or notebook checks.
- Have weekly or biweekly locker/desk cleanups.
- Have students carry timetables with them if they move between classes and/or have one attached to their desks.
- Have students use post-it notes to quickly write down reminders that can be transferred at a later time to a more formal checklist.
- Insist that students number the pages in their notebooks and clearly label all diagrams, maps, etc.
- Teach students the benefits of having a table of contents for projects or units.
- Teach students, especially those who tend to write in a cramped style, to keep notes uncluttered. Those with cramped writing can be encouraged to leave a space between lines of print so that reviewing notes is less challenging.
- Teach students to highlight or underline important headings or main points. Don't assume that students with learning disabilities understand what is important. They often underline almost everything if they do not receive direct instruction in this area.
- Provide adequate space for materials and work. Encourage students to put away any materials that are not necessary for the task at hand.
- Encourage use of planners/homework books. Parent, student and teacher involvement is most helpful until the student uses them consistently.
- For younger students, it is often beneficial to have a time set aside at the beginning of the day to plan activities. For example, first planning, then story/language centres, etc.
- Use a visual planning board so students can see that the day is broken into parts. Refer students to it when they ask, "What do we do next?"
- Make sure students know what materials are needed for each subject and help them to develop a sequence when looking for materials and proceeding with a task.

- Use visual organizers for students in younger grades.²⁸ For example, after instructions are given, make a pictorial checklist for the class. Ask, "What do we need to gather to complete this task?" Draw a picture of each item as students name them.

Next, ask, "How will we proceed? What will we do first . . . second . . .?" As students describe the sequence of steps, make a checklist with the order of steps, using picture and word cues:

1.  draw
2.  cut
3.  plan
4.  glue
5.  compare to the model.

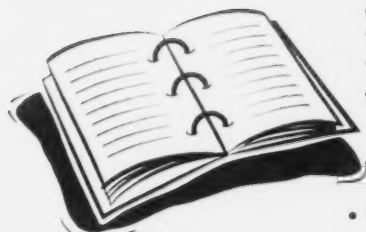
²⁸ From G. Reid. Reprinted with permission.

Tips ➔ on Organizing Your Notebook²⁹

Save yourself time, stress and safeguard against lost papers: organize your notebook! Consider the following suggestions and your teacher's requirements before you begin. Make a point of keeping your notebook organized all the time. If you always put things in the same place, you will be able to easily find them when you need them.

Keep it together . . .

- Use a three-ring binder whenever possible. It is easier to add to and rearrange papers in a three-ring binder than a spiral notebook.
- Use divider sheets with pockets. This will allow you to keep handouts that have not been three-hole punched. You can always punch them later.
- Place coloured tabs on these divider sheets to distinguish between different subjects. Organize the binder in the order of your classes.
- Divide each subject area into sections, using sheets of coloured paper as dividers. Write each section's name on a separate sheet of paper. For example, in language arts, label a blue sheet of paper "Daily Work," a green sheet "Quizzes and Tests," a yellow sheet "Writing," a pink sheet "Vocabulary," etc. You may want to ask your teacher to suggest headings.



Don't forget to . . .

- Put your name, address and phone number on the inside cover of your binder in case you lose it. Put clear tape over your name label to protect it from water damage.
- Keep a supply of notebook paper in the back of each subject area in your binder.
- Store pencils, pens, a small calculator, a ruler, a small pair of scissors, a small stapler, paper clips, coloured pencils, etc., in a plastic zipper bag made for binders.
- Place a calendar and assignment notebook or assignment sheets in your binder. If your teachers require separate assignment sheets for each subject, keep one in each subject area.
- Include the classroom rules, grading procedures, grade sheets, etc., for each class.
- Keep your "To Do" list in the front pocket of the first subject in your binder or clip it to the binder's inside cover.

²⁹ From *Teaching for learning success: practical strategies and materials for everyday use*, by G. Frender. Adapted and used by permission. This page can only be reproduced on a limited basis for individual use by teachers/students.

Note-taking

Taking notes is a complex process. Students must attend to the speaker, listen, understand what is being discussed, filter out essential information and remember it long enough to write notes. A summary of Strichart & Mangrum's³⁰ general considerations for effective note-taking follows.

- Get Ready:
 - have note-taking materials ready
 - review previous notes
 - do all assigned reading
 - identify the purposes for listening.
- Take Notes:
 - listen for the purpose
 - use short sentences, phrases and abbreviations
 - skip lines between new ideas
 - copy information from the chalkboard
 - note things that are confusing in a "Don't Understand" column
 - note unfamiliar words.
- After Notes:
 - add important information left out of rough notes
 - answer any questions placed in a "Don't Understand" column
 - complete any blanks in the rough notes
 - write definitions for each unknown word
 - prepare final notes.

The following suggestions, from Devine,³¹ are for developing early note-taking skills in upper elementary.

- As a lesson proceeds, list the major points of the lesson on the chalkboard and note the points under discussion. Students begin to see that there is a plan behind lectures and classroom presentations.
- Provide simple how-to-do-it presentations as opportunities for note-taking. Have individual students explain to the class how to repair a flat tire, how to make fudge, how to use a book's index, etc. Tell other students to jot down the specific steps presented. Explain transitional words or phrases, such as first, second, next, finally. After the presentations, students compare the steps they listed and recall the transition words used by the speaker.

³⁰ From *Teaching study strategies to students with learning disabilities: ready-to-use reproducibles, teaching plans, and resources for middle to high school*, by S. S. Strichart & C. T. Mangrum II. Adapted and reprinted with permission.

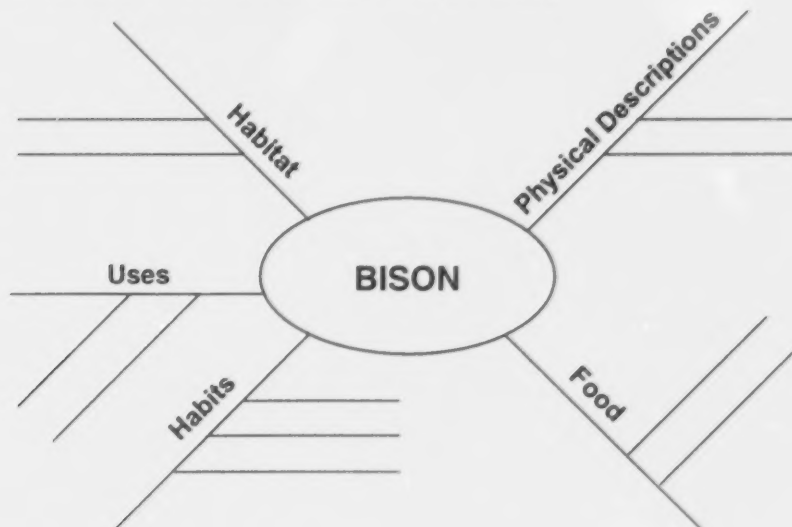
³¹ From *Teaching study skills: a guide for teachers*, by T. G. Devine. Adapted and reprinted with permission.

- Provide students with skeletal notes before a lecture or reading. They then take notes following the categories provided. The format may be selected from a variety of forms; e.g., web, linear list of topics, cloze structure, main points in one column with room for details in another column.

To practise note-taking, distribute duplicated skeletal notes at the beginning of the lesson with three or four major points clearly stated but with enough space for students to fill in examples, details or evidence presented to support each point. Time should be set aside toward the end of the period for students to compare their responses. While they are discussing their notes, write the supporting material that is most important on the blackboard. Students may then compare their responses to the teacher's.

Format A

Provide students with a skeletal web identifying the main topic areas. Students insert the important facts or supporting details relating to each sub-topic. This note-taking strategy is particularly effective as a tool for research or report writing.



Format B

Using the previous webbing format may be difficult for students who have problems with spatial organization. It is often beneficial to use a more sequential format such as the following.

Bison

Habitat: _____

Physical Descriptions: _____

Food: _____

Habits: _____

Uses: _____

Format C

For students requiring even greater structure, notes can begin with key words or concepts written on the board with cloze-style sentences to fill in during or following the lecture.

Cloze-Style Sentences

Meat	The _____ is better known as the
Bison	buffalo in North America. They are a
Insulation	_____ that grazed the _____ by the
Grass	millions in the 1800s. They are an extremely
Herd Animal	hearty animal who can survive even the
Fur	coldest of winters due to the _____
Herbivore	provided by their heavy _____. They are
Hide	a _____ who can survive even on the
Prairies	sparsest _____. The bison has
	excellent _____ and a splendid _____
	which has renewed interest in breeding and
	domesticating them on ranches in Alberta.

Format D³²

In this format, students use the middle portion of the page to take notes during class lectures. The right-hand column provides space for students to summarize their notes immediately after class or after school, or this portion can be used to record additional information from class review before a test. In the two left columns, list textbook page references for content covered and important vocabulary words and their definitions from the lecture or text. This format helps students organize their note-taking and enables them to utilize their notes for study.

Page Reference	Vocabulary	Notes	Summary or Review

Format E³²

Format E features a column to record sample questions and answers taken from the lecture or text; or the student takes notes, then as a study review, makes each pertinent statement into a question. These questions, when answered, help highlight important material.

Page Reference	Notes	Sample Questions/Answers

³² Formats D and E are adapted from *Exceptions: a handbook of inclusion activities for teachers of students at grades 6-12 with mild disabilities*, by D. A. Murphy et al. Adapted and reprinted with permission.

Format F³³

In this format, the page is divided into three main columns in addition to the left margin. The margin is used to make comments about the information. An asterisk may indicate that the information is understood. A question mark may be used for information that requires clarification. The general idea or theme is recorded in the first column. An explanation or elaboration of the theme goes in the middle column. Facts and examples are recorded in the third column.

		<u>Lecture Title or Chapter Title</u>	<u>Date</u>
Use for marking notes with an asterisk, a question mark or a comment.	General Idea Theme	Explanation Elaboration	Facts Examples

Mnemonics for Organizing Notes

Bachor & Crealock³⁴ suggest two mnemonic devices to help students learn note-taking.

- L.E.N.S.

Refers to note-taking from lectures, tapes, etc. and reminds the student to:

L listen

E encode by selecting relevant points, rejecting irrelevant material and paraphrasing

N note-take by organizing and restructuring

S summarize.

- S.M.O.K.E.

Refers to note-taking from printed material. The student:

S skim the material

M selects the main idea

O develops a system of organizing headings and making notes

K locates key points and significant supporting details

E evaluates notes for the purpose of reorganizing, enumerating and/or rewriting.

³³ From *A Collection of the best learning strategies on earth*, by K. Kovach. Adapted and reprinted with permission.

³⁴ From *Instructional strategies for students with special needs*, by D. G. Bachor & C. Crealock. Adapted and reprinted with permission of Carol Crealock.

Test-taking

Test-taking is often an area of difficulty for students with learning disabilities. They may have a good knowledge of the material but do poorly on exams because they have poor test-taking skills. They need strategies for preparing for tests, such as those discussed under time management and note-taking. They also need strategies to prepare for and take different styles of tests; e.g., essay vs. multiple choice.

Test-preparation Strategies

- Whenever possible, teachers should inform students about exams well in advance (at least five days).
- Students should then be encouraged to ask about the content of the test and the type of test.
- Students should schedule their time so that they can thoroughly review all the material in small bites.

Good notes are an important prerequisite to effective test preparation. The note-taking strategies in the previous section provide several approaches to taking notes from class lectures and from textbooks. To study for tests, students actively review their notes and question themselves. Information that is unclear should be clarified during the studying process. Summarizing notes is an effective study technique.

The following five-day strategy, from Strichart & Mangrum II,³⁵ may help students prepare for tests:

- Five Day Strategy

Day 5: Students review notes from the textbook and any class notes. Use the Survey, Question, Read, Recite, Review (SQR³) reading strategy. Anything that is not understood should be noted and asked about the following day. See Appendix 15, page LD.255, for more on the SQR³ strategy.

Day 4: Students use memorizing techniques that are useful for them as they study the information in their textbook notes and class notes. They begin to commit this information to memory by reviewing it at least three times on Day 4.

Day 3: Students rewrite textbook and class notes in a briefer form. Encourage the use of point form and abbreviations when rewriting notes.

³⁵ From *Teaching study strategies to students with learning disabilities: ready-to-use reproducibles, teaching plans, and resources for middle to high school*, by S. S. Strichart & C. T. Mangrum II. Adapted and reprinted with permission.

Day 2: Students write questions that they think will be on the test. They then answer these questions using their rewritten textbook and class notes as necessary. Teachers can guide students by doing this type of exercise in class.

Day 1: Test day — students review their rewritten textbook and class notes from Day 3 before they begin the school day. Just before the test, they complete a final review of these notes, focusing on parts they had difficulty remembering.

Study Guides

Research studies indicate that the use of study guides improves the performances of students with learning disabilities. This is true for test performance and for increased understanding of critical information (Hudson et al., 1993, p. 116). Study guides may take a number of forms. They can outline the main concepts and vocabulary involved in a unit of study or they can be more specific, depending on individual needs of the student. Some examples follow.

- Short-answer questions with page number references: What areas of Canada did David Thompson explore? (See pp. 22, 25, 26, 34 and notes from December 11 and 12.)
- Even more structured is: David Thompson explored three lakes in Manitoba in 1797. They were Lake _____ (p. 97), _____ (p. 101), and _____ (p. 110). He first worked for the _____ (p. 79) company and then joined the rival _____ (p. 86) Company.

The idea is to provide guided review and/or practice in learning main concepts, diagrams, problems, etc. It is generally more helpful to provide study guides that match the format of the test; e.g., provide short-answer study guides if short-answer questions will be asked on the test. One study indicates that there are no significant effects from using a study guide when there is a poor match between the study guide format and the test format (Bergerud et al., 1988, p. 75).

Taking Exams

The following page offers some general suggestions for students to use when writing exams. It is important for students to understand that they must learn how to approach different test formats; e.g., multiple choice, true/false, etc.

Tips ➔ on Taking Exams

General Tips

- Before you begin, find out:
 - How much time do you have?
 - Can you use a calculator, tables, diagrams, textbook, etc.?
- Ask questions if you are unsure about anything.
- Skim through the whole test before beginning.
- Read all directions carefully.
- Spend most of your time on the questions that are worth the most marks.
- Answer the easy questions first and then go back to the harder ones.
- Double check to make sure you have answered everything before handing in the test.

³⁶ From *Exceptions: a handbook of inclusion activities for teachers of students at grades 6–12 with mild disabilities*, by D. A. Murphy. Reprinted with permission.

Essay Tests

- Highlight important words in the directions.
- If you are having trouble understanding the question, try to rephrase it in your own words.
- Brainstorm what you know about the topic before you begin. Draw a mind map or an outline.
- Write clearly, so the teacher will be able to read your writing.
- Keep an eye on the clock and use most of your time for the questions that are worth the most marks.

Objective Tests

- Go through the whole test and answer the questions you know first.
- Mark the questions you are not sure of and come back to them at the end.
- Double check your work and change your answers if you change your mind.
- Use the **SCORER** approach:³⁶
 - S – Schedule your time
 - C – Clue words — look for them
 - O – Omit difficult questions until last
 - R – Read each question carefully
 - E – Estimate answers (use intelligent guessing)
 - R – Review your work.

True/False Tests

- Check to see if there are penalties for guessing; if not, answer everything.
- Use the SCORER strategy (see above).
- Be sure that all parts of a statement are correct before marking it true.
- Assume an answer is true unless the statement can be proved false.
- Watch for negatives such as “not” or prefixes such as “in,” as in the word “infrequently.” Negatives can completely change the meaning of a statement. For example, the statement “I frequently eat a sandwich for lunch,” is the opposite of, “I infrequently eat a sandwich for lunch.”
- Simplify statements to make them easier to understand. For example, “You cannot ride a bicycle if you don’t keep your balance,” can be simplified to, “You can ride a bicycle if you keep your balance.”
- Remember, statements that contain words like, “all, always, never,” are usually false and statements that contain words like “sometimes, most, many,” are usually true.

Multiple Choice Tests

- Skim through the entire exam. Find out how many questions there are and plan your time accordingly.
- Do not spend too much time on any one question. Make a note (“?”) beside the question and go back to it if you have time.
- Read each question carefully, underline key words and try to think of an answer before looking at the choices.
- Read all the choices and see which best fits the answer.
- When you are not sure which answer is correct, cross out any choices that are wrong.
- Pick the choice that is best.
- Guess, if you don’t know the right answer. Answer all questions unless there is a penalty for guessing.
- If time permits, recheck your answers.

Information Processing Domain

The information processing domain includes how information is received through the senses, attended to, perceived, organized, stored (memory), retrieved and expressed. The metacognitive domain provides active control of these processes. The strategies that follow address difficulties in attention, memory, gross and fine motor skills, and visual perception. Specific strategies related to auditory and language skills are included in the Communication Domain, page LD.146.

Strategies for Receiving Information

Attention

Information being presented must grasp and hold students' attention. It takes thought, care and preparation to use a teaching methodology that is varied, interesting and relevant to students' lives, especially for students with attention difficulties. See Section 4, page LD.216, for further information about attention deficit disorders. Active and critical listening skills, attention and intention to learn are vital precursors to effective memory. Students can become more effective learners if they:

- Find meaning in information. Make connections with known information or personal experiences. Use the five senses to increase awareness.
- Use positive self-talk instead of reinforcing negative behaviour. For example, if a student complains, saying, "Oh, I always make that mistake," ask the student to change the statement to, "I know I have a problem with this, but I can beat it if I try."
- Practise patience and realize that remembering takes time.
- Ask clarifying questions.
- Use self-questioning: How do I remember? What successful strategies have I used before? What do I remember about this? What's important about this? How will I use this? How will I remember this tomorrow and next week?
- Write down the teacher's examples or demonstrations for later reference.
- Take notes during class or use a highlighter when reading a handout, thinking about the key points of the lesson.
- Deliberately establish the time and place for studying.

To assist in the attending process, effective teachers can do the following.

- Make the information to be remembered meaningful to students. Relate the information to students' experiences. Use the context of the material to be learned as a clue for association. For example, the word "medicine" will help students remember the name of a person that helps on an ambulance — a medic.

- Strengthen associations by providing information that appeals to a number of the senses; e.g., when studying bee hives and bee activity in science, have students look at an actual bee hive, feel honey comb, taste honey comb, draw a diagram of a hive or the different types of bees, listen to a bee keeper talk about his or her work, etc.
- Use multiple stimuli (including senses) to strengthen associations.
- Use novelty, rhythm and rhyme.
- Group information by colour, form and category.
- Use spatial and temporal cues. For example, when the buzzer sounds, have students check to see that they are on task.
- Promote awareness of individual learning styles.
- Use an advance organizer to provide a framework for material presented.
- Use humour where appropriate.
- Use metacognitive questions to allow students to create their own memory techniques; e.g., How will you remember this? Can you think of a memory trick to help remember this?
- Ask students to express their intention to learn and remember; e.g., I want to remember this.
- Give instructions one at a time, clearly, slowly and stressing key words. Have students repeat or paraphrase instructions.
- Provide written instructions and/or picture cues for reference.
- Stress key points; e.g., This is important. How will you remember it?
- Provide verbal/non-verbal cues and reinforcements.
- Help students set goals, making them achievable but challenging.
- Encourage students to set time limits and deadlines.
- Teach students to reward themselves for accomplishments.

Strategies for Organizing, Storing and Retrieving Information

Memory

There are many approaches to organizing, storing and retrieving information. Students who are taught a variety of memory strategies can step back and consciously examine how the strategies work for them. They can decide which strategies help them remember best and become more independent in the active use of strategies to organize, store and retrieve information.

Students with learning disabilities often have difficulty with memory tasks due to a lack of adequate strategies rather than ability (Kirk & Chalfant, 1984, p. 105). The following factors are important for teachers to consider when concerned about students' memories.

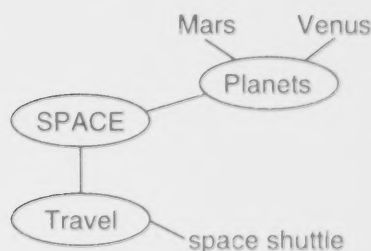
- Which tasks or responses do students have difficulty recalling?
- What physical, social and emotional factors need to be examined?
- What instructional factors should be considered to determine if they affect the memory process?
- What are the students' preferred learning styles for memory tasks and are they appropriate?
 - Visual: remember by writing things down, taking notes
 - Auditory: remember by verbal repetition, discussing
 - Kinesthetic: remember best what was done, not what was seen or talked about
 - Combination of above.
- Are students aware of the strategies they are currently using and whether or not these are the most appropriate? For example, students with auditory preferences may not study well by reading and re-reading their notes. A combination of approaches (recitation, reading and self-questioning) may be more effective.
- Are students aware of the times of day that are personally most suitable for studying and learning; e.g., night owls vs. larks.
- Are students aware of whether they work/learn/study best alone, with a partner or in a small group?

Strategies for Organizing, Storing and Retrieving Information

- Use brief daily reviews to encourage long-term storage. Use a daily warm-up quiz, asking one question based on the key concept from the previous class. Everyone answering the question correctly gets an extra point.
- Have students teach material to someone else as an effective technique for reinforcing information.
- Have students move — marching/walking works well for memorizing.
- Wherever possible, organize information in temporal (time) and spatial (diagrams, charts, etc.) frameworks; e.g., timelines for studying history. The use of visual aids, charts, lists, pictures and diagrams can be helpful. Work from general to specific. Students must know general concepts before learning specific facts.
- Show students a variety of memory strategies and provide opportunities to discuss how well the strategies work.
- Provide feedback to raise students' awareness of when a memory strategy is effective and when it is not. Some strategies are more effective in certain situations and some strategies may not work well for individual students.

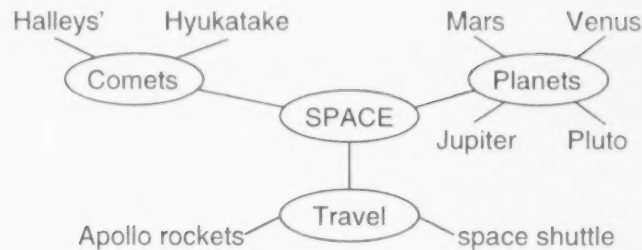
- Encourage students to adapt or create new memory strategies of their own.
- Provide feedback to raise students' awareness that their strategy choices can affect their learning.
- Provide opportunities to practise applying problem-solving steps, including self-monitoring, to memory tasks.
- Help students relate daily lessons to the unit concept, objectives and goals. This activity works best if students have an advance organizer or course and/or unit outlines. Ask:
 - What unit are we working on?
 - What is the purpose of this unit? Why are we doing this work?
 - Where are we in the unit? What have we covered already?
 - What will we be working on next?
 - What is today's lesson?
- Give students the opportunity to see growth and learning through the use of pre- and post-tests in a unit. This information could be graphed to show progress.
- Use mind maps as a pre- and post-learning activity to help students see all that they have learned. At the pre-learning stage, students generate a mind map to show all that they know about the concept to be learned. After the unit has been taught, students generate a post-learning mind map. By comparing the pre- and post-unit mind maps, students see what they have learned.

Pre-learning mind map³⁷



³⁷ From Dr. A. Price. Reprinted with permission.

Post-learning mind map³⁷



Repetition/Rehearsal

Students have probably used repetition many times without realizing it. Anytime they have read, said, or written something a number of times to remember it, they have used repetition. The following is an example of how to use repetition to remember a list of words.

- Use a repetition procedure:
 - Read aloud the word and its definition. Use a dictionary for help in pronouncing a word.
 - With eyes closed, say the word and its definition.
 - Without looking at the word, write the word and its definition.
 - Repeat the steps until the word and its definition can be written from memory three times without an error.
 - Do this for each word on the list.
- Teach students rehearsal strategies:
 - repetition
 - rehearsal at spaced intervals (every three to four days, for short periods of practice, followed by a break and a switch in material being studied)
 - recitation aloud
 - self-questioning techniques
 - studying with a partner by asking each other questions, predicting examination questions and answering them, making lists or mind maps of concepts, using a variety of learning channels (read it, listen to it, say it aloud)
 - use the RCRC strategy (read, cover, recite, check) when rehearsing material.

³⁷ From Dr. A. Price. Reprinted with permission.

Mnemonic Devices

Mnemonic devices are used to improve memory. They are sometimes referred to as memory tricks.

- Rhyme — A rhyme is a poem or verse that uses words that end with the same sound. For example, to remember the number of days in each month, use the rhyme: *Thirty days hath September, April, June and November. All the rest have 31, except February, which has 28.*
- Rhythm and Song — Have students think of a rap or song to recall something; e.g., singing steps to complete a mathematics operation to the "A, B, C Song." Simply repeating something back in a sing-song voice or tapping a rhythm while rehearsing something can be helpful for some students.
- Acronym — An acronym is a word made by using the first letter of other words. For example, the names of the five great lakes form the acronym HOMES: **H**uron, **O**ntario, **M**ichigan, **E**rie, **S**uperior.
- Abbreviation — An abbreviation is a group of letters made from the first letter of each word to be remembered. For example, FBI is an abbreviation for the Federal Bureau of Investigation.
- Acronymic sentence or phrase — An acronymic sentence or phrase is formed by words beginning with the first letter of each word to be remembered. For example, the phrase *very active cat* might be used to recall the three types of blood vessels in the human body: veins, arteries, capillaries. Spell arithmetic by remembering: A rat in the house might eat the ice cream.
- Pegword Strategy³⁸ — This strategy is useful for remembering items where order is important; e.g., historical events. Use pegwords to form a picture in students' minds. The steps follow.

Memorize pegwords that rhyme with numbers:

1 — bun	6 — sticks
2 — shoe	7 — heaven
3 — tree	8 — gate
4 — door	9 — line
5 — hive	10 — hen

When these pegwords are memorized, form a mental image of the item to be remembered with each pegword. The more bizarre the image, the more likely it is to be remembered:

Pegword	List	Image
1. bun	toothpaste	toothpaste in a bun
2. shoe	milk	milk in a shoe

³⁸ From *SPELT: a strategies program for effective learning and thinking: a teacher's manual*, by R. Mulcahy et al. Adapted and reprinted with permission.

- Visualization is "seeing in your mind's eye what you are trying to remember" (Bos & Vaughn, 1994, p. 213). It involves creating mental pictures as a way of remembering information. The following example illustrates a way to use visualization as a memory strategy.

Read the following story, "A Buffalo Hunt on the Prairies," creating pictures in your mind of what is happening. Form the pictures in the sequence presented. After reading the story, cover it with a blank sheet of paper.

On another piece of paper, draw the mental pictures. Be sure to number your pictures to show the order in which they happened in the story. Now go back to the story and determine if the pictures are in the correct order and if the details are correct.

A Buffalo Hunt on the Prairies³⁹

The warm sun is beating on your back while you crouch down behind a rock among the bushes. You peer over to view the herd of buffalo and observe another hunter approaching. You move in the crouched position, adjusting the buffalo skin over your body. You test the wind with a damp finger. You adjust your direction.

- Use the LOCI Strategy for remembering items when order is important.⁴⁰ Students are taught, through the use of visual imagery, to link specific items to be learned with familiar settings. They choose a series of locations within a familiar setting; e.g., their bedroom: window, bed, light switch . . . Next, they take a mental walk through the locations to establish the order and to practise visualizing them. Then, they pair one item to be remembered with each location through visualization.

location	item	visualization
1. window	toothpaste	visualize a tube of toothpaste hanging in the window
2. bed	milk	visualize a milk carton as a pillow on the bed
3. light switch	bread	visualize a piece of bread stuck through the light switch

In order to remember the items in the opposite order, visually walk in the opposite direction retrieving the items to be remembered.

³⁹ From *Teaching thinking: enhancing learning: a resource book for schools ECS to grade 12*, by Alberta Education. Reprinted with permission.

⁴⁰ From *SPELT: A strategies program for effective learning and thinking: a teacher's manual*, by R. Mulcahy et al. Adapted and reprinted with permission.

- Use association. To associate means to remember how things relate. For example, peanut butter and jam go together. By using this association, if you remember peanut butter you will remember jam. Association is a good strategy to use when attempting to remember many things that go together.

To use association, think about the things you must remember and divide them into groups that relate. For example, look at the following list of words: car, apple, truck, pear, plane, cherries, boat, bananas.

Put the words into two categories:

Transportation:	Fruit
truck	apples
car	pear
plane	bananas
boat	cherries

- Use selection. For students to select what they need to remember, they should:
 - examine their notes and underline, highlight or make simpler notes of the important information
 - read textbook assignments and take notes on the important information and ideas
 - examine their handouts for important information and take notes
 - make a list of the information they think is important. Ask the teacher what is important. Compare their lists with the teacher's.

Tests

When preparing for tests, students should:

- Follow the steps above to select the information to prepare for a test.
- Plan a rehearsal schedule, allowing enough review sessions to cover all the material, leaving the last session for an overall review.
- Write the review sessions in their school agendas and colour code them to the test date. When reviewing for more than one exam, the colour coding will make it easier to manage their time.

- Use mnemonic devices and appropriate rehearsal strategies. If students used visualization to remember the first time they reviewed the information, using the same visualization will help them remember better. If they used mapping to write out their notes, a simplified map may help them. If they used rhymes or other mnemonics, they should use them again to review for the test. If they taped their notes, they should listen to them again as they go through their notes.
- Test each other on pertinent information.
- Teach the concepts to the class or small group as a review before an exam.

Memory Transfer

Occasionally, give students time in class to review for upcoming exams. Ask them what strategies they use and which ones are most effective. Discuss memory strategies and uses in daily life as well. Have students think of new applications or adaptations for memory strategies in various subject areas; e.g., in French, mathematics, science? Provide explicit transfer of the strategy to other curricular areas.

Teachers need to remember that students will not automatically transfer memory strategies to new learning situations. They need to be coached to use the memory strategies they already have and to devise new ones when appropriate. Always teach new memory strategies in the context of a subject area. Provide extensive examples and ample time for practice.

Sample Lesson Plan

The following is a sample lesson plan for memorizing the names of the planets in order. This four-stage plan is used over a period of time.

Materials: solar system kit or video, charts/photos/posters of planets in solar system.

Ask students to think about their own neighbourhoods. Ask them what they like the most, what they would like to improve, what they would like to investigate that they don't know much about. Have a discussion that elicits a feeling of belonging to the neighbourhood. Allow students to discuss feelings of alienation that might come up as well.

Introduce the solar system by comparing it to the neighbourhood. Their home is to the neighbourhood as the earth is to the solar system. We care about the earth and we are interested in what's out in the solar system as well as in the universe.

Ask students to list the names of the nine planets in order (from the sun) on a piece of scrap paper. This is not a test for marks. All they're doing is finding out and letting you know what they know before you teach this lesson.

Have charts/photos/posters of the planets on the bulletin board. Use a kit or show a video about planets.

Write the names of the planets on the board or overhead. Have the students copy the names correctly. Rehearse the pronunciations of the names.

The following strategy, (select, organize, associate and rehearse/review) adapted from Fleet, Goodchild & Zajchowski,⁴¹ is useful for developing effective knowledge storage and retrieval.

- Select

At this stage, the student must reduce the amount of information to be remembered to key elements or main ideas. The amount of information will determine the choice of appropriate memory strategies.

- Organize

The probability of information being remembered is higher if it is stored in the form of organized categories; e.g., labelling units with headings; using numbers, tables, and diagrams; and indicating relationships with symbols, arrows, etc.

Since students have their own retrieval methods based on a preferred learning style, a system must be devised to help students remember better.

Students with a preference for visual materials might need to:

- see a poster with planets' names colour-coordinated to the colour of the planet
- store an image of the poster in their imaginations.

Students with an auditory preference might need to:

- verbally rehearse the names as many times as it takes
- try rhyming or make up a story or a song to go with the planets' names
- use their imaginations to store the sound of the names and their spellings on an imaginary tape recorder to play back whenever they need the information.

⁴¹ From *Learning for success: skills and strategies for Canadian students*, by J. Fleet et al. Adapted and reprinted with permission.

Students with a kinesthetic tactual preference might need to:

- handle a model of the solar system
- draw their own labelled posters
- recite the names of the planets while looking at a correct list and moving; e.g., walking, pacing, swinging, rebounding, jogging, running in place.

- Associate

Association is the ability to relate new knowledge to existing knowledge. The more associations made between old and new knowledge, the better the new information will be retained.

Some associations are known as real associations because they are based on personal experience. Other associations need to be made arbitrarily. The following is an example of arbitrary association which uses mnemonics to memorize information.

Show the students the following and ask them to find what these words have in common with the names of the planets. (You might have a better saying.)

My	Mercury
Vacation	Venus
Ends	Earth
Monday	Mars
Just	Jupiter
Send	Saturn
Up	Uranus
Nine	Neptune
Pizzas	Pluto

Ask them to make up their own mnemonics. Remind them to make the correct association with each planet.

- Rehearse/Review

Rehearsal is a useful form of review. It involves using knowledge in the same way that would be expected in key situations, such as test-taking.

Students should test themselves and make any necessary changes before the real test. The test should not be the first time that the student recalls information from memory. Self-testing provides important feedback on what the student does and does not know.

During self-testing, students with a preference for visual materials should try to visualize the poster and the mnemonic device for each planet name. Students with an auditory preference should replay the imaginary tape in their heads and be encouraged to whisper the names to themselves while they write the words. Students with a kinesthetic preference should move to the same rhythm they used to store their information. They recite the list while they move and should spell the names out loud if that is a necessary component.

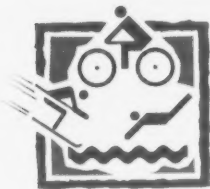
Support, encourage and praise students in their efforts to make better use of their memories. Remind them that memory is neither good nor bad, and they have a memory that works and which can be trained to work well.

Gross and Fine Motor Development

Unless a student has specific physical reasons for difficulty with fine and/or gross motor skills, intervention is sometimes a matter of practice and as much stimulation as possible. These skills grow from experience; i.e., out of interaction between the student's body and environment (Holley, 1994, p. 221).

However, students with learning disabilities or attention-deficit/hyperactivity disorder (AD/HD) often exhibit difficulty coordinating and planning gross and fine motor movements. This can be manifested by the student who appears clumsy, awkward, has difficulty organizing hands and materials for tasks such as cutting, has difficulty learning a proper pencil grasp or has illegible writing. These difficulties warrant further attention.

Gross Motor Skills



Studies on clumsiness indicate that children do not outgrow clumsiness. In addition to difficulty with motor tasks, students who exhibit clumsiness are also more likely to demonstrate poor self-concept, social competence and school performance. These students are less likely to be physically fit and may not participate voluntarily in motor activities (Cantell, Smyth & Ahonen, 1994; Gillberg & Gillberg, 1989; Losse et al., 1991). Students with coordination difficulties may take longer to learn motor skills. Even when a motor skill is learned, students may continue to appear awkward and may have to work harder than others to perform the skill.

Some students demonstrate good functional skills despite qualitative differences in their gross motor skills (awkwardness, poor coordination, difficulty imitating or planning movements). They are willing to attempt physical skills, enjoy participation in physical activities and display adequate abilities which allow them to participate functionally with their peers. Students who are coping well should be encouraged to continue their participation in physical education, intramural and recess activities without intervention.

Students who do not have good functional skills, who are embarrassed and hesitant, have difficulty keeping up to peers or have difficulty learning new skills may benefit from the following specific strategies.

Gross Motor Strategies

- Provide extra time to complete a task. "If given enough time, children with clumsiness are usually capable of completing the required task" (Sellers, 1994, p. 1).
- Break down new gym activities into small steps that are easier to learn and achievable.

- When teaching a new skill:
 - demonstrate the task visually
 - talk through the skill giving verbal cues
 - position or move the student's body to allow him or her to "feel" how to perform the task.
- Emphasize and reward participation and effort.
- Encourage the student to better his or her own performance.
- Give the student alternative roles such as score keeper, manager or captain.
- Provide opportunities to practise skills prior to gym class with a smaller group or on an individual basis.
- Encourage sports that a student is interested in. Some students prefer individual sports such as swimming, skiing, running or bicycling. Developing these sports can lead to lifelong participation and enjoyment.
- Some students do not perceive their body boundaries and space. They bump into objects and invade body space by sitting too close or sprawling all over other students' areas. Use individual mats or hula hoops to establish boundaries. Introduce games in which students fit through spaces or under "bridges" with their arms and legs extended or close to their sides to provide experience in this area. Some students do not understand the concept of personal space. Social skills activities in which younger students are taught about the "bubble" which extends around us and what happens if bubbles collide are sometimes helpful. Older students can role play comfort zones for talking and interacting with people.

Fine Motor Skills



Students having difficulties with fine motor tasks that affect their functional performance in school, benefit from direct teaching. Fine motor tasks that may affect a student's ability to be independent in school might include dressing tasks (buttons, shoe tying, zippers), opening packages, using scissors or other simple tools.

General Fine Motor Strategies

- Use student-directed planning to help students learn a specific skill or plan and organize tasks. An example follows.



Think Aloud⁴² teaches students to ask themselves four questions to guide problem solving. The purpose is to organize students' thinking and promote verbalization as they answer the sequenced questions.

1. Define the problem.
What is my problem? What am I supposed to do?
2. Consider alternatives and make a plan.
What is my plan? How can I do it?
3. Monitor the plan.
Am I using my plan?
4. Evaluate the plan.
How did I do?

- Break tasks into smaller steps.
- Provide greater time to complete tasks; e.g., have the student start to get ready to go outside a few minutes earlier than the rest of class.
- Allow or provide compensations; e.g., wider lines for cutting, velcro shoe fasteners, larger manipulatives, etc.

Handwriting

Specific Strategies for Handwriting Difficulties

Handwriting (printing or cursive) is typically the greatest fine motor concern for students because of the direct impact it has on classroom performance. When addressing handwriting, a combined approach of direct teaching strategies and compensation strategies should be used.

Compensations can provide immediate success for students who struggle to produce legible handwriting as the teaching/remediation of handwriting skills is addressed.

Strategies to Compensate for Poor Handwriting

- If a student is having difficulty with pencil control, place the emphasis on legibility, not neatness. If the teacher or student can read the assignment, then accept it as is.
- Allow greater time for task completion or decrease the amount of writing required. Set realistic goals so that the student will continue to be motivated.
- Some students produce neat legible writing that takes an inordinate amount of time to produce. These students often hold a pencil too tightly and press down hard because they may

⁴² From *Think aloud: increasing social and cognitive skills — a problem solving program for children: grades 1-2*, by B. W. Camp & M. A. S. Bash. Adapted and reprinted with permission of authors.

not be getting strong feedback signals from the hand and fingers. They fatigue easily and often have writer's cramp. Allow them to take breaks from writing and to write less. A felt tip pen can sometimes help.

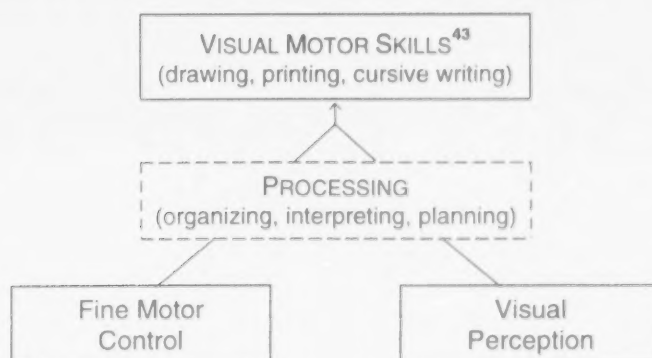
- Use a scribe to help determine if the student's writing is impeding his or her success or if the student is also having difficulty with the knowledge of basic facts.
- If the student experiences difficulty copying off a blackboard or overhead, provide notes and a highlighter for marking important ideas and details while other students are copying. Teach students to take point-form notes and use abbreviations; e.g., b/c = because, w/o = without.
- Allow the student to answer short answer questions in point form.
- A tape recorder or computer with word processing software may be useful for older students who are writing lengthy papers or having difficulty keeping up with note-taking. Teach keyboarding skills in younger grades if this need is anticipated.
- Provide students with prepared worksheets that will allow them to focus on the task. For example, provide sheets with mathematics problems already copied, "fill in the blank" for reading comprehension or questions that can be answered by circling the correct answer (Missiuna, 1995, p. 9).
- Allow students to demonstrate knowledge through alternative approaches. For example, allow the student to report orally, tell a story into a tape recorder or draw pictures to demonstrate knowledge.
- Some students find cursive writing easier motorically, because it involves a continuous smooth movement. The student with learning disabilities should be allowed to use the easiest, most legible form of handwriting, be it manuscript or cursive.
- Use the type of paper that works best for the students. For example:
 - widely spaced lines for a student with large handwriting
 - graph paper for a student who has difficulty with spacing
 - graph paper with large squares for a student who has difficulty keeping numbers aligned in mathematics
 - paper with a rough texture to provide resistance for the student who has difficulty forming letters accurately.



Teaching Printing or Cursive Writing

When determining who needs help with handwriting, it is essential to remember that the goals of instruction are legibility and comfort. All adults do not write the same way and neither do students. Handwriting is a personal expression of self. Deviations from the style being taught are acceptable as long as the writing is legible and done with ease. Teach students that neatness and attractiveness can vary depending on how the finished product will be used; e.g., a letter to an employer will need to look more polished than one to a friend, or a story that is going to be "published" needs to be more attractive than one that is for personal use (Reid, 1988, pp. 252, 254). Understanding why a piece of writing must be neat releases students from the burden of having to make every letter perfect all the time.

Identifying why a student is having difficulty with handwriting is important to remediation. Difficulty with handwriting may be a result of poor fine motor control, poor visual perception, difficulty processing information or a combination of these factors.



Strategies to Improve Pencil Control

Tracing exercises are useful when a student is beginning to learn how to form letters and experimenting with print, but are not terribly useful as a formal instruction method. However, some tracing may be beneficial for students who demonstrate difficulty with the motor control of their pencil.

- Activities to improve motor control:
 - trace over lines or outline pictures
 - draw through pathways and mazes
 - colour, paying attention to staying within lines.
- Monitor the student's grasp. Efforts should be made to develop a proper tripod grasp early in the elementary years. Poor pencil grasp can affect a student's speed, control and comfort in

⁴³ From S. Mitchell. Reprinted with permission.

writing. Poor grasp is difficult to change in later years. Pencil grips may help establish a proper tripod grasp for some students. There are a variety of different grips available at stationary or teacher stores.

Strategies to Improve Visual Perception

General visual perception exercises may be of little value as they have not been found to generalize to specific academic skills. Direct teaching for specific academic problems related to poor visual perception; e.g., letter reversals, spacing difficulties, etc., is likely to be more effective.

The following strategies address difficulties in visual perception including orientation/directionality, tracking print from left to right, spacing, alignment and reversals.

- Give students a vocabulary for directions. Be sure the student understands and uses position words such as up/down, left/right, around/sideways, in relation to their own bodies.
- Help students find or notice visual cues such as a ring, bracelet or watch that is always worn on the same hand. Put stickers or write L and R on the back of younger students' hands.
- For younger children, consistently model left-to-right sequencing.
- Older students may find it difficult to deal with directional concepts such as, "find the bottom right-hand corner of the page" or directions such as north, south, east and west. They may need a great deal of structure and practice with these concepts before they are mastered. It is sometimes helpful to have them position their bodies and walk through directions such as, "You are now facing north, turn your body to the right. What direction are you facing now?" Labelling the walls of the classroom (N., S., E., W.) will help.
- Window markers that expose one line of a print, or L-shaped markers that corner the print and move with the reading are sometimes helpful for the student whose eyes stray up or down a page (tracking). Placing a book mark down the left border of a book to cue the student to read from left to right can also be helpful. Marking the left-hand margin with a consistent visual cue such as an "x" or a little house will help the student to begin printing from the correct side of the page.

- Reversals are common for students up to Grade 3. Teaching students to verbalize the sequence in forming specific letters (only the ones they are having trouble with) while they are being formed may be useful. Posting the problem letters on the student's desk with directional arrows may help with recognition or matching.
- For b/d confusion, have the student use a fist and thumb reminder (left hand for "b" and right hand for "d" with fist facing inward) or use the "bed" strategy.

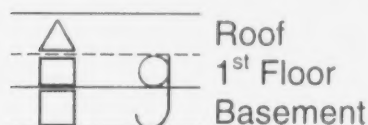


Strategies to Address Processing/Planning

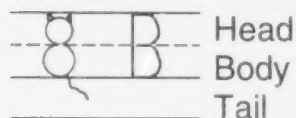
Some students have adequate fine motor control and good visual perception but appear to have difficulty processing the two. These students may have difficulty planning how to make specific letters and with sizing, spacing and organizing the page. They may also have difficulty remembering what specific letters look like.

- Model letter formation for the student giving a visual demonstration.
- Teach students to talk through an exercise in which they are looking for visual details; e.g., I need to look at these two pictures and find things that are different about them. First, I will look at the trees. I see that there are more branches on one than the other. Then I will look at the houses, etc.
- Provide verbal cues to describe the letter formation and the distinctive features of the letter.
 - Rhymes can be effective for some students; e.g., Down and across and down once more. That's the way to make a four.
 - Use verbal cues for where to start and finish. Some students have difficulty with verbal directions such as top, bottom, left, right. The use of the following analogies may be helpful.

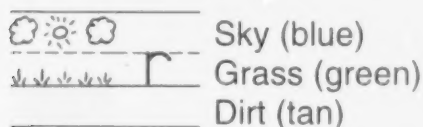
These analogies may be used to describe the placement of the letter on the line.



Start on the first floor and go around the circle, then make a hook starting at the first floor and go down into the basement.



Make a line straight down from the top of the cat's head to the bottom of the body. Then, make a bump where the head is and a bump where the body is.



The letter just sits in the grass. Start from the top of the grass and go down. (Don't dig into the dirt!) Then go up and make a small hump up and around.

Areas can be colour coded for easy recognition.

- Terminology used to describe letter formation should always be consistent.
- Encourage the student to verbalize the steps to form the letter as it is made.
- Use a multisensory approach to accommodate students' differing learning styles and provide varied input to students' sensory systems. This approach also adds interest and motivation for the student who struggles with more conventional approaches. Have students try the following.
 - Use a variety of writing implements, such as chalk, markers, scented markers, paints, white board markers, pencil crayons, pencils with soft leads, pastels, etc.
 - Use a variety of materials to write on, such as smooth paper, rough paper, cardboard, aluminum foil, sandpaper (with chalk), white board, blackboard, etc.
 - Write in a variety of positions, such as standing at the blackboard, writing on a window with washable markers, on a slanted easel or on the floor.
 - Write on the blackboard so that the letters can be made large and mistakes easily erased and fixed.
 - Use tactile materials to write in, such as finger paints, pudding, shaving cream, plastic bags filled with gel or trays of sand, rice, grain, salt, cornstarch, powdered pudding mix or powdered drink mix.
 - Form letters with clay, pipe cleaners, waxy strings or pretzel dough.

- Trace fingers over letters made of tactile materials such as sandpaper or corrugated cardboard, or letters with different textured materials glued to them. The student should always be encouraged to trace over the letter in the direction that it would be written and verbalize the formation of the letter.
 - Have students lie on the floor and use their bodies to make letters. One student could stand and help direct other students into position.
 - Make large letters on the floor with tape or use chalk on the sidewalk and have students walk through the formation of letters and verbalize what they are doing.
- Avoid letting students practise forming a letter the wrong way. Poor habits are hard to change.

Communication Domain

It is important to understand the difference between the terms speech and language. Speech is the verbal means of transmitting information. Language refers to the understanding and use of the symbol system used to exchange ideas, information and emotions. The language process is extremely complex. Language disabilities can occur anywhere along the continuum from reception, integration (processing, memory, comprehension) to expression, and tend to affect all domains of learning. The communicative process of listening, speaking, reading and writing can all be affected by language disabilities.

With this in mind, it is critical for parents and educators to be aware of the constant need to facilitate and strengthen the development of language and communication skills. Teachers of students with learning disabilities should be aware of the language demands placed on students in every presentation, activity or assignment given. Whenever necessary, they should seek assistance from speech-language pathologists for instructional advice.

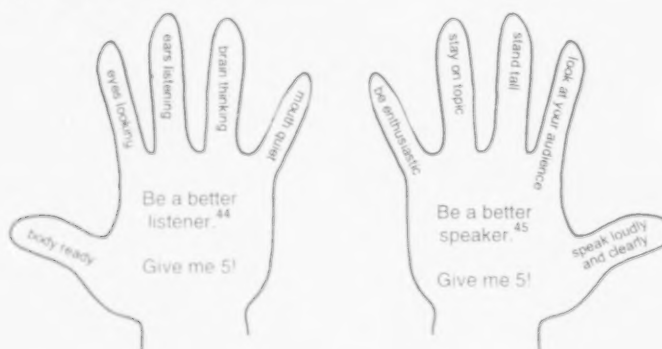
Strategies for Auditory Skills

Auditory skills encompass the perception and processing of auditory information. If a student appears to have difficulty processing auditory information in the classroom, have the student's hearing tested to rule out any physical/medical problems.

The following strategies are helpful in addressing auditory skill difficulties in the classroom:

- Be a good model.
- Limit or eliminate distractions (visual, auditory, tactile).
- Seat the student for optimal listening.
- Gain attention and be consistent with demands for listening behaviour.
- Provide slow, simple, clear instructions.
- Stress important words, pause between phrases and use gestures.
- Pre-teach new concepts and vocabulary.
- State what your figurative language means; e.g., "cut that out" may mean "stop yelling right now please."
- Establish clear classroom rules and routines.
- Establish buddies (to check on understanding and memory of content).
- Have the student repeat information/instructions.
- Check comprehension.
- Rephrase and restate.
- Encourage students to ask questions.
- Use visual aids.
- Give frequent breaks from listening.
- Encourage participation.

- Provide listening tapes; e.g., songs, stories, to reinforce oral language development.
- Supply a structure whenever possible; e.g., first, second, third, last.
- Review information frequently.
- Establish acceptable movement for active students; e.g., the student may move between two designated desks or to a study carrel outside the room. Students can also be taught how to doodle on topic. Squeezing a ball while listening to a lecture helps some students focus.
- Ear plugs may help block out noise to improve concentration during independent work.
- The "Give Me Five" strategy is used in classrooms to remind students how to be a better group listener and speaker. See Appendices 16 and 17, pages LD.256–257 for full-size reproducible examples.



Strategies for Language Skills

Modify Classroom Language

- Present information in simple sentences. Avoid complex grammatical forms.
- Break longer sentences/directions into shorter components.
- Restate sentences and directions using simplified vocabulary and body cues.
- Isolate and pre-teach new vocabulary and concepts so students become familiar with them before they are introduced in the regular lesson.
- Talk about how to use language for meaning and communication.
- Use one theme to teach as many subjects as possible to limit vocabulary and language demands while encouraging transfer of skills.

⁴⁴ From B. Whittam-Neary. Reprinted with permission.

⁴⁵ From L. Krenz. Reprinted with permission.

Modify the Environment

- Reduce competing auditory and visual stimuli.
- Gradually increase ambient noise to train desensitivity.
- Reduce the time between presentation and response.
- Reduce the number of listeners in the group.
- Increase the wait time following questions.

Modify the Response

- When introducing new, unfamiliar or complex tasks, require simple low-level responses; e.g., imitation or selecting a response from a series of choices.
- As comprehension increases, move from choosing the correct item from a small, closed set of possible alternatives, to recall of the item when no alternatives are present.
- Gradually require higher-level responses such as paraphrasing, defining, explaining, summarizing and critiquing.
- Use small group projects to develop social interaction skills, inferencing skills and abstract thinking.

Modify the Presentation

- Use contextual cues, such as:
 - stating the topic
 - providing specific verbal instructions to guide the listener
 - supplying a prepared outline
 - using slides, charts, pictures, graphs, diagrams or a film
 - presenting specific questions to direct or guide thinking.
- Avoid redundancy but rephrase complex instructions or statements.
- Provide examples that relate the new information to what is already known.
- Use a slower-than-normal rate of speech.
- Increase the proximity of the speaker to the listener.
- Record strategies that help the student.

Teach Learning Strategies

Many of the strategies presented in other domains are helpful for students with communication difficulties. Some important strategies are listed below.

- Self-monitoring — students evaluate their own behaviour; e.g., Am I on topic? How well did I listen? See pages LD.212–215 for suggestions for self-monitoring.
- Verbal mediation or self-talk — students talk themselves through tasks.
- Rehearsal — students repeat direction/information to themselves.
- Paraphrasing — students rephrase information in their own words.

Strategies for Language Output

- Visual imagery — students draw mental pictures of objects, story sequences, etc. as they listen to lectures or read passages.
- Analysis of key ideas — students pull key words from directions; i.e., what, where, why, how.
- Students observe others in the class to see what to do; e.g., what book to use, what materials to get ready.
- Students ask the teacher (or other students) for repetition or clarification when necessary.

Use Word-retrieval Strategies

- Use first sound cue; e.g., "st" when students are trying to think of "stop."
- Present alternatives for students to choose from; e.g., is it black or brown?
- Encourage students to describe an object; e.g., usage, location and association with similar words, such as "table and _____."
- Teach category terms; e.g., colour, shape, food, furniture.
- Emphasize relevant features when teaching new concepts and vocabulary.
- Give plenty of time to respond.

Students who experience difficulty with the output of language may become anxious and self-conscious in the classroom. A safe accepting environment will encourage students to attempt to communicate verbally. If you don't understand what a student says:

- ask for repetition
- ask for information about the word
- ask the student to show you or describe the word
- ask the student to use a different word or say it in a different sentence
- ask other students to interpret for you.

Strategies for Articulation

- Slow down the classroom pace.
- Maintain eye contact.
- Give the student plenty of time to respond.
- Model a slow rate of speech and clear pronunciation.
- When the student mispronounces words, model the correct pronunciation, stressing the sounds that were mispronounced.
- When calling on this student to talk, don't ask open-ended questions.
- Encourage the use of full sentences rather than single words to gain contextual clues.

Strategies for Encouraging the Development of Sounds

- Increase awareness by pointing out the sounds in words.
- Talk about how to say the sounds — what to do with the mouth; use a mirror to practise.
- Make the sound "stick out" by stressing/repeating it.
- Compare sounds with each other; e.g., sh and ch.
- Point out sounds in the classroom to help increase students' awareness and discrimination skills (environmental sounds as well as speech sounds in words).

Strategies for Fluency

- Create a relaxed unhurried classroom environment.
- Increase pause time and give the student plenty of time to talk.
- Decrease the pressure for speech.
- Reduce the excitement level in the class and maintain a calm atmosphere.
- Maintain eye contact, while being a relaxed attentive listener.
- Rephrase the content of the student's speech slowly and smoothly.
- Prevent teasing.
- Use a random call rather than alphabetical or row-by-row call (call on student early so there is less time for tension to build, and don't force a student to respond).
- Don't ask the student to slow down, repeat or take breaths.
- Don't finish the student's words or sentences for him or her.
- Establish rules for taking turns.
- Speak openly about stuttering only if the student is aware that he or she stutters. If the student is unaware, avoid drawing attention to the stutter.
- Do not make an issue of students' dysfluent speech.

Academic Domain

Reading Strategies

"Reading, like thinking, is a complex process. The reader has to produce responses to the words the author wrote. In some way the reader has to match his thinking to the author's" (Clay, 1993, p. 9).

Reading involves the active search for meaning, and requires the reader to interact with the text. Strong readers put information-seeking processes and strategies into effective sequences. Weaker readers do not. This section provides some general and specific strategies for teaching reading.

Tips →

for Creating a Community of Readers

- Model your own use and enjoyment of reading.
- Have many books available at the student's independent reading level (that the student can read with at least 95 per cent accuracy). For a simple way to determine readability levels, have students use the "five finger rule" for selecting an appropriate book. Students choose a book and turn to a page somewhere near the middle. For each word they cannot read, they hold up a finger. If they reach five fingers before they have finished reading the page, the book is probably too hard and they should select another one. For a more exact method, use the Fry Readability Formula described in *Exceptions — A Handbook of Inclusion Activities for Teachers of Students at Grades 6–12 with Mild Disabilities*. See Murphy, page LD.342, for bibliographic information. This formula enables teachers or parents to determine reading levels of novels or textbooks.
- Provide alternate purposes for reading easier material. For example, have the student read to younger students.
- Include poems, raps, cheers and songs in the definition of acceptable reading material. Often these have a great deal of predictable, repetitive language.
- Encourage a home reading program where students and parents read every night for 10–15 minutes.
- Provide time for students to read material of their own choice every day. Encourage students to talk to the teacher and each other about books and characters they enjoy.
- Model the metacognitive strategies used by good readers. Raise students' awareness of strategies to use before, during and after reading. See Appendix 18, pages LD.258–261, for the metacomprehension strategy index.

General Strategies for Word Identification/ Decoding

Letter Identification

- Teach letters by enabling the student to use visual, tactile and auditory cues. For example, make letters out of plasticine, trace them on sandpaper, "write" them on a partner's back, whisper the sounds, highlight all of the letter "a's" on a page.
- Limit the amount of new information.
- Do not introduce letters in the same lesson which may cause confusion; e.g., b/d, p/q.
- Provide enough repetition to ensure letters are in long-term memory.
- Give students alphabet strips for their desks.
- Introduce letters as partners; e.g., Aa, Bb.
- Every day, pick a letter that the student has trouble with. Have the student use a red pen or highlighter to mark the letter each time he or she sees it that day.
- See *Box Cars and One-eyed Jacks: On a Roll to Spelling . . . and More* for good ideas on letter identification. See page LD.285 for annotation.

Phonemic Awareness

There is growing evidence of the importance of phonemic awareness to the acquisition of reading skills. Phonemic awareness is a powerful predictor of later reading achievement (Juel, Griffith & Gough, 1986). Phonemic awareness can be improved through teaching (Ball & Blachman, 1991). The following approaches can be used to enhance phonemic awareness, particularly during the early stages of reading instruction.

- Choose children's literature to emphasize the sounds of language and repeated phonic elements. Trachtenburg (1990) provides a list of children's books that repeat phonic elements. Yopp (1995) has prepared an annotated bibliography of read-aloud books for developing phonemic awareness along with tips for selecting and using these books.
- Use "Making Words" activities described by Cunningham & Cunningham.⁴⁶ Each student is given some letters that they use to make words. During each 15-minute lesson, students make 12 to 15 words. They begin with two-letter words and continue adding letters until the final word is made.

⁴⁶ From "Making words: enhancing the invented spelling-decoding connection," by P. M. Cunningham & J. W. Cunningham. Adapted and reprinted with permission.

- Yopp⁴⁷ suggests several activities for developing phonemic awareness.
 - Use sounds and games that play with language through rhyme.
 - Use sound matching activities. Students decide which of several words begin with a given sound or they generate words beginning with a particular sound.
 - Use sound isolation activities. Students indicate which sounds are at the beginning, middle and end of words.
 - Use sound addition or substitution activities. Add or substitute sounds in words in familiar songs.
 - Use segmentation activities. Have students repeat the initial sound of words; e.g., J-J-J-Joe, or draw out the initial sound; e.g., Sssssss-am.

Phonemic Analysis

- Present word families in which the vowels represent the same sound (cat, fat, sat).
- Introduce small groups of sound units: map, tap, clap, rap, before introducing larger sound units: mapping, tapping. Finally, introduce larger sound units with multi-syllables: construction, destruction.
- Colour-code parts of words to show common phonetic patterns.
- Link new learning with information the student already has. To identify a larger word like "inside" have the student look for familiar little words inside the bigger word: in side.
- Provide enough repetition to ensure concepts are in long-term memory.
- Have the student become aware of the letter combinations that make sounds; e.g., highlight all the "st" words in a passage.
- Cunningham & Cunningham's *Making Words* and *Making Big Words* provide many exercises for building and analyzing words.

Fluency

- Students should always read material at an independent or instructional level to practise fluent reading.
- Demonstrate how to read words in small groups. Begin with phrases of three or four words and gradually increase the number of words. Use a pencil to lightly underline each group of words to be read together; e.g., they were sitting in the house.
- Include many sight words in reading passages to increase automaticity.

⁴⁷ From "Teaching reading: read-aloud books for developing phonemic awareness: an annotated bibliography," by H. K. Yopp. Adapted and reprinted with permission.

- Provide enough practice with the passage to establish smoothness; do repeated readings. One way is to provide three copies of the same reading passage — at instructional level (90 per cent mastery). One student is selected to read orally and the rest of the students are equipped with coloured highlighters. As the student reads orally, the other students read silently and highlight any errors (miscues) that are not self-corrected. When the reader is finished, the students and teacher discuss and correct the miscues and the reader highlights the errors he or she made. Then the reader uses the next clean copy to re-read from. The process is repeated. Generally, by the third round, the reader has read it beautifully and all the students celebrate.
- Use paired reading, in which two students or a student and an adult read a passage aloud together. The less-skilled reader learns to develop a reading rhythm and to read for chunks of meaning. Over time, the pairs develop signals and the less-skilled reader can signal that he or she wishes to read alone. Taped books are of benefit for repeated reading and "paired" reading with the tape rather than another reader.
- Use choral reading and reader's theatre to make oral reading meaningful and fun.

Context Cues

If a word doesn't sound right or make sense, have the student:

- read back
- read ahead
- skip the word and read to the end of the sentence for clues
- look at the beginning of the word for letter clues and think about what would make sense.

Specific Strategies for Word Identification/ Decoding

- The word identification strategy DISSECT can be used with junior high students with learning disabilities. The seven steps require the student to focus on the context surrounding the word, dissect the word into component parts using simple rules and available resources; e.g., teacher, dictionary. The key words used to teach the steps form a mnemonic that can be used to help students memorize the steps.⁴⁸

- D — Discover the word's context
- I — Isolate the prefix
- S — Separate the suffix
- S — Say the stem
- E — Examine the stem
- C — Check with someone
- T — Try the dictionary

⁴⁸ From "A Word identification strategy for adolescents with learning disabilities," by B. K. Lenz & C. A. Hughes. Adapted and reprinted with permission.

- Teach that long vowels say their names.
- Teach cue words (body parts) for short vowel sounds:
a – hand, e – leg, i – hip, o – body, u – thumb.
- Vowel sorting games can provide opportunities to practise hearing, recognizing and producing vowels.
 - Game Board for Sorting Vowel Sounds⁴⁹
Have students sort pictures or words into the correct intersecting squares according to the vowel sound of the object. For example, *hen* would go in the E column in the short row.

	A	E	I	O	U
Long					
Short					
R = controlled					

(Make sure students understand that when "r" is preceded by a vowel, the vowel sound changes.)

- Cut out large construction paper houses and place a vowel (long or short) in each house. Have students cut items from catalogues and paste those with matching vowel sounds in each house.
- Vowel Tic Tac Toe⁵⁰
Make flash cards with the following written on them:

Short a	Long a	R-controlled a
Short e	Long e	R-controlled e
Short i	Long i	R-controlled i
Short o	Long o	R-controlled o
Short u	Long u	R-controlled u

Provide a sheet to draw tic tac toe grids. Have the two students who are playing draw one vowel card each. Then, instead of marking each square with X or O, the student writes words that contain the sound on his or her card. An example of a partially finished game is shown:

cake		
	hot	
make		pot

^{49, 50} From *Locating and correcting reading difficulties*, by E. E. Ekwall & J. L. Shanker. Reprinted by permission.

See *Boxcars and One-eyed Jacks: On a Roll to Spelling . . . and More* for more word games. See page LD.285 for annotation.

- Reversals of words, parts of words or letters are best corrected by use of left-to-right movements and context cues.
 - Have students underline the word or sentence, sounding out the word as it is underlined or reading the sentence as it is underlined.
 - Teach students to pace their reading with their hands, practising the left-to-right movement.
 - Draw arrows from left to right under troublesome words.
 - Let students use a typewriter or computer for troublesome words. This will allow them to see the words formed left to right.
 - Use a coloured letter at the beginning of words commonly confused. Discontinue this as soon as the word is no longer a problem.
 - Pair words that are sometimes reversed, was/saw, net/ten, etc. Use one word in a sentence and ask the student to point to or write the word used.
 - Use an index card with a green dot, an arrow and a red dot to remind students of left-right directionality when reading. Keep it handy while reading.
 - To make students aware of the importance of the sequence of letters in words commonly reversed, place one word above another. Have students draw lines from the first letter of the top word to the first letter of the bottom word, saying the letter names as they draw the lines; e.g.,

saw
↓↓↓
was

- Use highlighters to mark letters that students have difficulty discriminating; e.g., all "b's" highlighted in green and all "d's" highlighted in yellow. See strategies to improve visual perception, pages LD.142–143.
- Be certain that words students are expected to read are a meaningful part of their spoken vocabulary.
- Teach students to use word analysis and context clues rather than random guessing at words. Ask students what strategies were used to figure out the word. As they read, circle the words guessed at, replace these words with blank lines and have students reread the material filling in the correct word from the context.
- Have students develop the habit of re-reading several words before the difficult word, sounding out at least the first sound of

the difficult word, and then reading several words following the difficult word. For example, The large dog was ch_____ on the bone. If students read "on the bone" and hear the sound of "ch," they will likely say chewing.

- Teach students to use highlighters to mark key words, supporting details, new vocabulary, etc. Use acetate sheets if it is not possible to mark directly on the text.

General Strategies for Comprehension

When teaching reading, encourage students to actively engage in the comprehension process by discussing and drawing on their background experiences. Before reading, teachers should encourage students to think about how the text relates to their personal experiences. Three techniques to encourage this follow.

- Brainstorming — students list as many words or phrases which are associated to the topic as they can.
- Webbing, mind mapping, semantic mapping — organize the brainstormed ideas in graphic form.
- The K-W-L strategy⁵¹ requires three basic cognitive steps: accessing what they **K**now, determining what they **W**ant to learn, and recalling what they did **L**earn as a result of reading. Prior to reading an article, brainstorm orally to find out what students know about a topic. Print that information under the "K" heading on the board. Brainstorm orally to find out what additional information students want to know about the topic. Before students begin to read, each writes down on his or her own worksheet, under the "W" heading, the specific questions that he or she is most interested in having answered as a result of the discussion. Students can either fill out the "L" section as they read or immediately following the completion of the article. The discussion that follows should help students relate what they already knew about the topic to what was included in the article they read in class. Have students check their questions to determine if the article dealt with their concerns. If not, suggest further reading.

K — What I already know	W — What I want to learn	L — What I learned

⁵¹ From "K-W-L: a teaching model that develops active reading of expository text," by D. M. Ogle. Adapted and reprinted with permission.

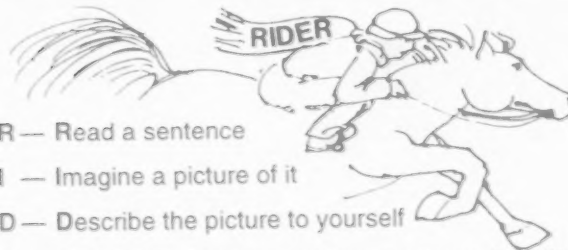
Specific Strategies for Comprehension

- Finding the main idea:
 - Look for it in the first sentence of the paragraph.
 - Look for repetitions of the same word or words in the whole paragraph.
- For young readers, re-telling a story can simply include what happened at the beginning, middle and end.
- Older readers can plot the storyline on a rollercoaster.



Visual Imagery Strategies

- R.I.D.E.R.⁵² is especially effective in improving retention of descriptive writing such as novels, short stories, etc. Have students, as they read a descriptive passage:



- R — Read a sentence
- I — Imagine a picture of it
- D — Describe the picture to yourself
- E — Elaborate: clothing, colours, movement, setting
- R — Repeat previous steps, gradually changing original picture.

Self-questioning Strategies

- Self-questioning strategies are another tool for students to check their reading comprehension. Simply asking questions does not ensure that a student will develop questioning strategies. It is helpful to model self-questioning and cue the student to ask questions. Self-questions help students comprehend and monitor the material read.

- ☐ Does this make sense?
 - ☐ What will happen next?
 - ☐ How does this relate to what I already know?

⁵² From *SPELT: a strategies program for effective learning and thinking: a teacher's manual*, by R. Mulcahy et al. Adapted and reprinted with permission.

Reciprocal Teaching Strategy

- The reciprocal teaching strategy⁵³ teaches students to read for meaning and monitor their reading. Teachers and students work together to set purposes for reading, critically evaluate and monitor their reading and find the main idea in the text.

One way to introduce reciprocal teaching is for the teacher to model the process below.

- Read a page of a book orally.
- Model the four steps of reciprocal teaching for that page
 - predict (what will happen)
 - generate questions (ask myself questions about the page)
 - summarize (what happened)
 - clarify (anything I didn't understand).
- Continue the process for the rest of the book, stopping at the end of each page to do the four steps.
- Use this process for a few books, until over time students are familiar with the process.
- Gradually, have students model the steps of reciprocal teaching for the class, then have them practise in partners and eventually, do it on their own.

Question-Answering Strategy

- In the question-answering relationships (QAR) strategy,⁵⁴ students are taught to classify questions about a text in terms of the type of information used to answer the question. Where is the answer?
 - Right There (The answer is in the story and it is usually easy to find.)
 - Think and Search (The answer is in the text but it is not in one sentence. You must find all the parts.)
 - On My Own (The answer is not found in the text but in your head.)
- Graham & Wong⁵⁵ adapted Raphael's question-answer strategy and replaced it with 3Hs (Here — Hidden — In My Head). While using this strategy, the following three self-questions are asked: How will I answer this question? Where is the answer to this question found (here on the page, hidden in the passage, or in my head)? Is my answer correct?

⁵³ From "Interactive teaching to promote independent learning from text," by A. S. Palinscar & A. Brown. Adapted and reprinted with permission.

⁵⁴ From "Teaching learners about sources of information for answering comprehension questions," by T. E. Raphael. Adapted and reprinted with permission.

⁵⁵ From "Comparing two modes of teaching a question-answering strategy for enhancing reading comprehension: didactic and self-instructional training," by L. Graham & B. Y. L. Wong. Adapted and reprinted with permission.



Paraphrasing Strategy

- The R.A.P. strategy⁵⁶ can be used to help students to remember more of what they read, particularly material with much detail.

Read a paragraph, silently thinking about what the words mean.

After reading the paragraph, stop and ask yourself what you have just read; e.g., "What were the main ideas and details of this paragraph?"

Put the main ideas and details in your own words. Try to give at least two details related to the main ideas.

Story Mapping Strategies

- S.P.O.T. is a strategy⁵⁷ which aids in comprehension and story retelling.

Setting — who, what, when, where

Problem — what is the problem to be solved?

Order of action — what happened to solve the problem? (correct/logical order)

Tail end — what happened in the end?

Motivate students to learn the strategy by demonstrating how it will help them remember what they have learned. Describe the components in a story and the steps used to identify and remember the different components. Model how to use the strategy by orally reading the story and labelling each component as you read. Retell the story using S.P.O.T. as a cue for remembering different parts. Practise reading stories together, labelling the components and retelling the story. Have students read stories independently and retell them using the S.P.O.T. strategy.

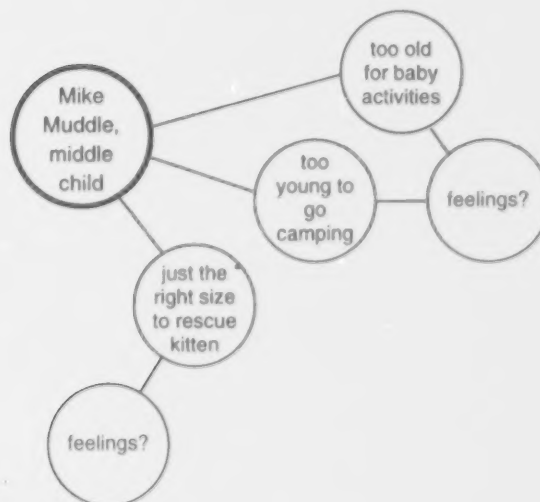
⁵⁶ From *SPELT: a strategies program for effective learning and thinking: a teacher's manual*, by R. Mulcahy et al. Adapted and reprinted with permission.

⁵⁷ From *Strategies for teaching students with learning and behavior problems*, by C. S. Bos & S. Vaughn. Adapted and reprinted with permission.

- Story maps are "graphic representations of all or part of the elements of a story and the relationships between them" (Davis & McPherson 1989, p. 232). These maps can depict everything from literal information to inferential information. Examples follow.

- Inferential Story Map⁵⁸

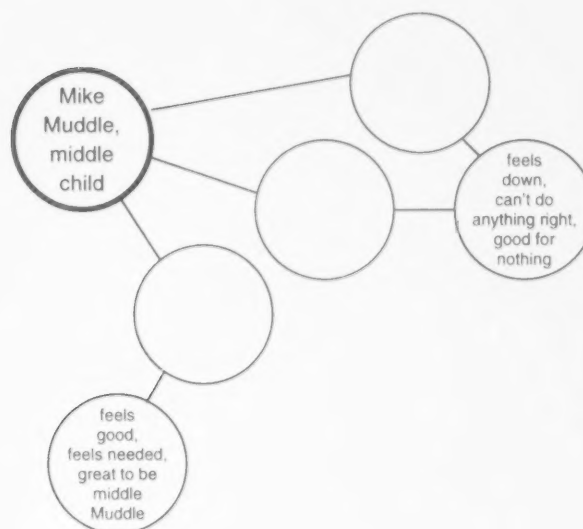
Inferential story maps are designed to help students recognize explicit information and use that information to infer unstated ideas. Students read to verify, modify or elaborate inferences and supply the missing information. Students may benefit from individual use of inferential story maps, particularly during reading or small group work at the post-reading stage. For example, using the following story map, students need to combine the textually explicit information (too old for baby activities, too young to go camping) with what they know about such matters, to infer how Mike Muddle felt. They supply knowledge-based information that is missing from the text-based story map.



⁵⁸ From "Story map instruction: a road map for reading comprehension," by A. T. Davis & M. D. McPherson. Adapted and reprinted with permission.

- Locating Information Story Map⁵⁹

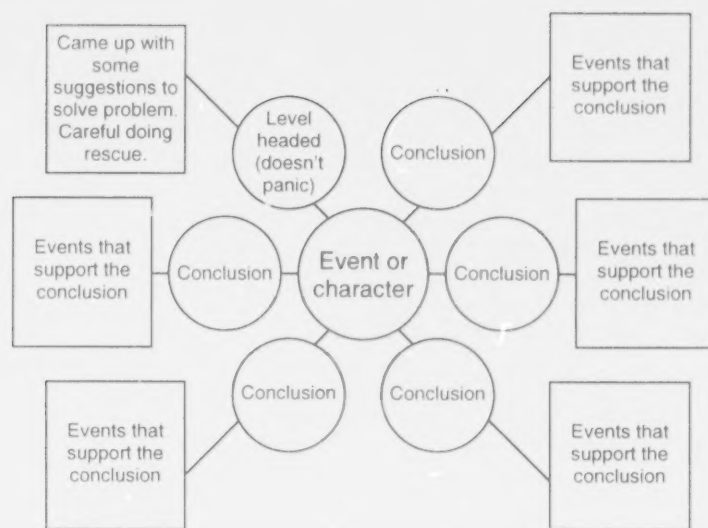
The locating information story map is similar to the inferential story map, with an important exception: the inferential information is supplied in the locating information story map, whereas the literal details are supplied in the inferential map. In the locating information story map, students read to locate specific information that supports conclusions or inferences.



- Drawing Conclusions Story Map⁶⁰

Information might be arranged on a story map to encourage students to draw conclusions. Drawing conclusions differs from making inferences because the conclusions are more dependent on information in the story. Students make conclusions and place them in the circles. The conclusions are based on information from the story contained in the boxes on the story map diagram. See next page.

^{59, 60} From "Story map instruction: a road map for reading comprehension," by A. T. Davis & M. D. McPherson. Adapted and reprinted with permission.



Refer to Alberta Education's *Program of Studies K-9 English Language Arts* (available June 1997) for specific outcomes by grade level.

See Alberta Education's *Diagnostic Reading Program, Books 4 and 5* and the *Programming for Students with Special Needs* series, Book 1 — *Teaching for Student Differences*, for more specific suggestions in reading.

Specific Reading Programs

Reading Recovery Program

This program was developed by Marie Clay for students who experience reading difficulties in their first years of school. Specifics for teaching this program are presented in *Reading Recovery: A Guidebook for Teachers in Training*. See Clay, page LD.338, for bibliographic information.

Patterned Language Approach

This approach uses predictable material; i.e. patterned books which contain repetitive structures that enable students to predict the next word, line or event. See Bridge & Burton, page LD.338, for bibliographic information.

Reading Workshop

Reading workshop refers to an independent reading program designed to help readers learn new reading skills, practise reading and share ideas about their reading with other readers. Reading workshop has been implemented from primary grades through high school. Ideally, at least two sessions per week should be held, lasting from 30-60 minutes, depending upon the ages of the readers.

Reading Workshop consists of a three-part process, adapted from Nancie Atwell's *In the Middle*,⁶¹ which provides the setting for readers to practise their reading skills and become more skilled and involved in the process.

1. Mini-lesson: usually teacher led, this component lasts from 5–10 minutes. It can take several formats: reading strategies, information about authors and books, a read-aloud section from a book or a poem, a read aloud by a “celebrity” reader (the principal, the caretaker, a parent), story elements (plot, rising action), introduction of different genres, etc. Different ideas for mini-lessons can be pulled from the programs of study.
2. Independent Reading: students select their own novels or other reading material for silent reading. During this time, hold conferences with individual students to listen to them read and to talk about their reading. Small groups of readers can be pulled for a book talk to discuss an element taught in the mini-lesson and how it pertains to their particular novel; e.g., characterization: Who is the main character in this novel? How do you know?
3. Readers' Response Journals: after students read, they have an opportunity to communicate with a classmate or the teacher by writing letters in their response journals. These can be structured by posing a question to be answered through their writing, or left open-ended, depending upon the age and ability level of the readers. Students use the friendly letter format for composing their letters. After the letter is written in the response journal, it is delivered to the person it was written to. This student must then send a reply (in the same journal) back to the original sender before the next Reading Workshop, answering any questions and adding comments or questions. These journals can be periodically collected by the teacher for evaluation or to add comments, insights or observations.

The following page summarizes Atwell's ideas for reading workshops mini-lessons.

⁶¹ From *In the middle: writing, reading, and learning with adolescents*, by N. Atwell. Adapted and reprinted with permission.

Ideas for Reading Workshop Mini-lessons⁶²

- Read aloud: fiction, poetry.
- Discuss how you choose a book.
- Give mini-lessons on book club offerings — Troll, Scholastic . . .
- Discuss how to identify a main character.
- Tell about an author, read from his or her work.
- Read aloud and talk about a short work — poem, essay, scene, myth, short story. This helps students learn what these are.
- Have students do book commercials.
- Invite "celebrity" readers to come in to talk about and read aloud what they like to read (other teachers, administrators, support staff, central office staff, parents).
- Discuss narrative voice (first person, third person, omniscient).
- Discuss formula fiction (predictable characters, predictable situations, predictable outcomes; e.g., Nancy Drew, Babysitters' Club, etc.).
- Discuss titles and leads — ways that authors bring us into their work.
- Discuss prologues, epilogues. What are they? How do they serve authors' ends?
- Discuss sequels, trilogies.
- Discuss theme — what is shown to us about life and living through what happens to people in a story?
- Discuss genres — science fiction, fantasy, historical fiction, western, mystery, romance.
- Discuss plot.
- Discuss authors' pseudonyms.
- Discuss conventions of publishing: copyright, copyright dates, reprinting, paperback rights, hardcover vs. paperback, jacket copy, cover illustrations, royalties, agents, how novels are adapted for film as screenplays, novelization (adaptation of a screenplay as a book).
- Discuss parodies.
- Discuss mythology.
- Introduce Shakespeare — his life, a selected speech, scene or sonnet.
- Present poetry — good for reading aloud.
- Discuss literacy devices: metaphor, simile, onomatopoeia.
- Use students' work from writers' workshops.
- Teach simple speed-reading techniques: skimming, scanning and skipping.
- Discuss the importance of re-reading books.
- Ask when, where and how they will read today; e.g., before bed?
- Discuss abandoning books: when to give up on a book; e.g., when you're bored or confused. Sometimes it is necessary to abandon a book and choose another.

⁶² From *In the middle: writing, reading, and learning with adolescents*, by N. Atwell. Adapted and reprinted with permission.

Written Expression Strategies



for 'Creating a Community of Writers

- Write every day.
- Encourage students to develop areas of expertise.
- Keep students' writing in folders.
- Share your writing with the students.
- Give students an audience.
- Read to students.
- Make the writing experience meaningful. Write to newspapers, publish books and put them in the school library.
- Develop your students' capacity to evaluate their own work.
- Encourage both parents and their children to keep daily journals.
- If students have difficulty with the motor/perceptual components of writing, encourage the use of a word processor and teach keyboarding skills.

WHAT WRITERS DO⁶³

Writers:

- ↳ rehearse (find an idea)
 - ↳ draft one
 - ↳ confer
 - ↳ draft two/revise
 - ↳ confer
 - ↳ decide the content is set
 - ↳ self-edit
 - ↳ teacher-edit
 - ↳ final copy/go public.

These steps are used for producing a published document. Students do not have to go through all these steps for all pieces of writing. They should be encouraged to write for pleasure and there are times when they may not need to get past "find an idea and draft."

⁶³ From *In the middle: writing, reading, and learning with adolescents*, by N. Atwell. Adapted and reprinted with permission.

Pre-writing Strategies

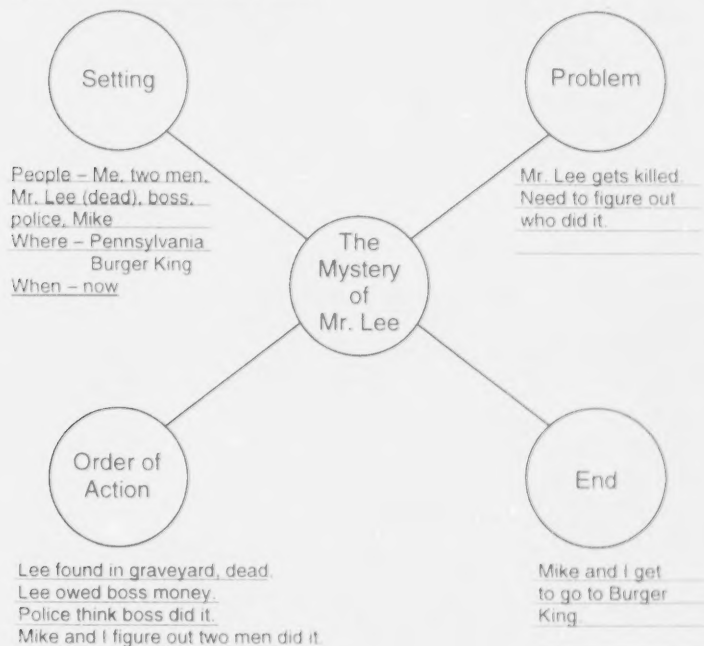
"The most important thing students can learn is what they know and how they know it" (Graves, 1985, p. 39). In the pre-writing stage, it is vital to establish and develop students' background information about the topic at hand. Some suggested prewriting activities include:

- Brainstorm for Topics
 - generate many ideas (at least 5–10)
 - accept all ideas
 - sketch or write students' ideas (expanding on another's ideas)
 - accept piggybacking.
- Select Topics
 - model the process
 - make a list of hobbies and interests
 - share lists with partners
 - select the three topics students are most interested in writing about
 - keep an ongoing list of topics in the writing portfolio for future writing.

Planning and Composing Strategies

Brainstorm sheets, plan think-sheets or story structure charts may help students organize their stories.

- Example of a brainstorm sheet⁶⁴



⁶⁴ From *Strategies for teaching students with learning and behavior problems*, by C. S. Bos & S. Vaughn. Reprinted with permission.

Appendix 19

Plan Think-Sheet

The Plan Think-Sheet asks students to organize their writing purposes or goals. Their intended audience is and their background knowledge related to their selected topic. The Plan Think-Sheet compares both students' and "Why am I writing this?" students' "Why am I writing this?" questions. "What do I want?" students' research and selection of background knowledge, and "How can I group my ideas?" categorizing ideas. These questions are used to prompt students to perform specific planning activities, while emphasizing the development of self-structural relationships important to the selection and control of planning strategies.

PLAN

Name _____ Date _____

Topic _____

Why am I writing this? _____

Why am I writing this? _____

What do I want? (background) _____

How can I group my ideas? _____

How will I organize my ideas? _____

Comparison/contrast _____ Problem/solution _____

Explanation _____ Other _____

1. Use "Writing and reading: partners in constructing meaning" by T. E. Raphael & C. S. Englert. Adapted and reprinted with permission.
2. From "Alberta diagnostic reading program: handbook 5: diagnostic teaching in a language learning framework" by Alberta Education. Adapted and reprinted with permission.

- Plan Think-Sheet⁶⁵

Plan think-sheets were developed to help students plan and organize their ideas prior to writing. Think-sheets are "personal records, not worksheets to be turned in for correcting; flexible tools, with the author making decisions about the order in which to take notes; something to be used to prompt thinking about the papers, not to direct their thinking; and something to be used as a basis for discussion, not an isolated activity." See Appendix 19, page LD.262 for an example.

Appendix 20 (cont d)

Story Structure

Appendix 20

Story Structure

Using the Story Structure Charts

- Ask students to identify the sections of a story they have read by writing in story structure charts.
- Ask students to identify the sections of the story they have read by writing in story structure charts.

Name _____ Date _____

Topic _____

Why am I writing this? _____

What do I want? (background) _____

How can I group my ideas? _____

How will I organize my ideas? _____

Comparison/contrast _____ Problem/solution _____

Explanation _____ Other _____

1. Use "Writing and reading: partners in constructing meaning" by T. E. Raphael & C. S. Englert. Adapted and reprinted with permission.
2. From "Alberta diagnostic reading program: handbook 5: diagnostic teaching in a language learning framework" by Alberta Education. Adapted and reprinted with permission.

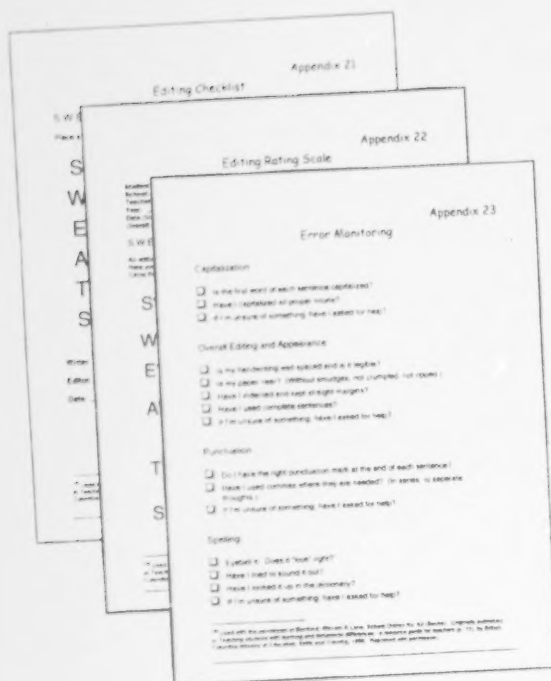
- Story Structure Charts⁶⁶

These charts provide a means for gathering information about students' recognition of key features of stories. The charts can also be used as an instructional guide.

By completing these charts, students demonstrate their knowledge of how ideas and information can be organized and how they synthesize ideas and information from a text. See Appendix 20, pages LD.263-264 for examples.

⁶⁵ From "Writing and reading: partners in constructing meaning," by T. E. Raphael & C. S. Englert. Adapted and reprinted with permission.

⁶⁶ From *Alberta diagnostic reading program: handbook 5: diagnostic teaching in a language learning framework*, by Alberta Education. Adapted and reprinted with permission.



Editing/Revising Strategies

During revision, the student concentrates on content. Many students would like to go straight to publication and eliminate this step. Frequent conferencing with students, assisting and redirecting them in small sections is sometimes more successful and less discouraging than tackling a whole story. In this way, students can be assisted before they go off track and the process seems unending. Peer conferences are often helpful during this stage. See Appendices 21–23, pages LD.265–267 for editing forms.

• Self-editing or Peer-editing Checklist

- ☐ Does my story make sense?
- ☐ Have I told the events of my story in the right order?
- ☒ Does my story have a good beginning?
- ☐ Does my story have an interesting middle?
- ☐ Does my story have an effective ending?
- ☐ Have I used interesting words?
- ☐ Have I included all of the important information?

- Use the “two before me” rule for editing. Students must share their work with two other students and go through the self-editing checklist before it goes to the teacher.
- Encourage students to “cut and paste” stories when making lengthy additions or deletions.
- Encourage students to write three good titles (or leads, or endings) in their draft, then pick (possibly with help from peers) the best version.
- Proofreading: have students proofread their own work first and then ask for assistance. Students should highlight, circle or place in boxes any errors in spelling, capitalization, punctuation, language, etc. Use resources such as the teacher, dictionary, thesaurus, personal spelling dictionaries, electronic spell checker for self-correction. Set up an editing table with highlighters, white-out, thesaurus, tape, scissors, etc., for students to use.

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Appendix 24

"COPS" Proof Reading Strategy

Capitalization
Have I used capital letters at the beginning of sentences and for proper nouns?

Organization
Is my work neat and attractively presented?

Punctuation
Have I looked at the uses of punctuation?

Spelling
Have I gone back to check that each word looks correct?

After reaching the COPS editing strategy, students can use the technique to peer editing. This form is used as part of the editing process. Rough drafts are checked and marked by the student, a peer and finally by teacher or writing teacher.

Looking at my work				
	C	O	P	S
Self				
Peer				
Adult				

© 1994 by the Department of Education, Division of Education, State of New York. All rights reserved. This form is used as part of the editing process. Rough drafts are checked and marked by the student, a peer and finally by teacher or writing teacher.

- Have students use the COPS strategy. They go through the text four times, checking for each of the elements of Capitalization, Organization, Punctuation and Spelling. See Appendix 24, page LD.268 for a COPS form.

- The following is a writing sample from a student. He has done some proof-reading already (COPS and a checkmark by words he thinks are misspelled). The teacher has also edited this piece. Note the proofreader's marks in the margin.

Jan. 4, 1994

Draft #1

Snowy Owls

Proofreader's Marks	
p.	punctuation
cap.	capital
sp.	spelling
¶	new paragraph
w.w.	wrong word
awk.	awkward
r.s.	run-on sentence
frag.	sentence fragment
O.	omit
^	insert
?	I don't understand
ap.	apostrophe

A Snowy Owl is black and white with yellow eyes

p. It onaly eats roudents and meet.

sp. It's enomes are a polar bear, a mob of terns, and smaller birds ganging up. It lives ither on ground or on the tops of these trees:

sp (2) sprouce, popler, cedar, and evergreens.

sp. To perfect his/her yong he uses his claws beak and brane to outsmart the enomey.

p, sp. the baby can fly/walk by 4-5 months.

cap. It leeves it's mother in 4-5 weeks. The end By Justin

The next step in the writing process is for the student to see how many of the errors identified in the margin he can find. Then, the teacher and student hold an editing conference to further discuss the content and changes.

Writers' Workshop

(Writers' Workshop ideas are adapted from several sources: Atwell, Calkins, Graves & Hansen. See Section 11, Bibliography, pages LD.337-344, for references to resources by these authors.)

- Pre-writing: includes topic generation, sharing of ideas and planning of piece.
- Rough draft: student writes quickly to "catch" the content, not stopping at this point to correct spelling or grammar.
- Content share: with a peer partner or the teacher. The purpose of this conference is to make certain the content is complete. The role of the peer partner is to clarify content by asking questions and helping the author add, change or delete content. The pair should sit beside each other so they can both see. The focus is not on the mechanics of the piece at this point, merely content.
- Revise: following the content share, the author makes revisions to the piece until he or she feels it is complete. A word processor makes this process easier. The cycle of content sharing and revising (steps 3 and 4) continues until the author feels the content is set.
- Self-edit: when the content is set, the author is ready for self-editing using strategies on page LD.169 and the COPS strategy. The letters COPS are printed in a column at the bottom of the piece of writing. The student reads the piece through four times, each time concentrating on a different aspect. The student checks off each step as it is completed. Then the piece is ready to be edited by the teacher. See Appendix 24, page LD.268 for the COPS strategy.
- Teacher edit: first, the teacher makes a positive comment about the content of the piece. Then, the teacher places proofreader's marks in the margins of the piece, indicating where correction is necessary, but not exactly where the error is. The teacher makes brief notes about the student's writing, the skills used correctly and skills to be taught on the student's conference record form. See previous page for proofreader's marks.
- Student edit: the piece returns to the student who becomes an error detective, searching to find and correct as many errors as possible as indicated by the proofreader's marks. This is usually done individually, but can be done with a peer partner.
- Student/teacher conference: the student and teacher now meet together to look at the piece, correct any errors that the student cannot find, discuss the content and teach new skills (limited to one or two per session). A running record of the skills taught can be kept in the student's writing folder or notebook, and in the teacher's conference record.
- Publish: a final copy of the completed piece is made and added to the student's portfolio of completed works.

- Writers' Workshop Lesson Plan
 - Mini-Lesson — 5–10 minutes in length. Types of mini-lessons: skills lesson, craft mini-lessons; e.g., techniques for revising, generating topics, cutting clutter, etc.
 - Writing Time

Students' roles: write, share, revise, conference, edit, share, plan, proofread, listen. Teacher's roles: edit, content conferences, editing conferences. This should make up the largest portion of the writers' workshop time.
- Group Conference and Author's Chair

Students who wish to get feedback from the group about a piece, at any stage of completion, may do so at this time. The author's role follows.

 - Bring a draft of a written work.
 - Read the whole or part of the work.
 - Ask for feedback from listeners. Request specific questions from listeners because comments may be too general.
 - Ask listeners:
 - What did you like about my composition?
 - Was there any part where you were a bit confused and wondered what I was trying to say?
 - Was there any place where you wanted to hear more?
 - Did I use any words you didn't understand?
 - Can you suggest any more interesting, descriptive words for me to consider?
 - Do you have any comments on my conclusion?
 - Summarize the suggestions which might be used.
 - Thank listeners for their help and indicate that their suggestions will be considered.



- Understand that spelling is developmental in nature. Five stages⁶⁷ that students move through as they become conventional spellers are:
 1. precommunicative — when children make scribbles and shapes to represent words (ages three to five)
 2. semiphonetic — early invented spelling, maybe beginning letters; e.g., ET (eat), KLZ (closed) and LF (laugh) (ages five to six)
 3. phonetic — choose letters on the basis of sound but do not follow any set rules (age six)
 4. transitional — mix between phonetic and standard (ages seven to eight)
 5. standard — correct spelling (ages eight to nine).
- Teach students that spelling can be a thinking activity and not strictly a memorizing activity.
- Encourage students to recognize personal strategies that they have found successful. Discuss spelling.
- Provide a rich language environment — develop expanded listening and speaking vocabularies.
- Use pre-tests.
- Teach a few words a day rather than the entire list in one sitting. Three words per day is more effective than four or five words per day.
- Provide sufficient practice and feedback. Give students ample opportunity to practise the words each day (students can work with partners).
- Practise self-correction; e.g.,
 - fold paper into five columns
 - write the word spelled correctly in the first column
 - student studies the word, folds the column back, writes the word in the second column, then checks that the spelling is correct and so on until the student has spelled the word consistently (three to five times).
- Select appropriate words. Students should already be able to read the word and know its meaning. Selection of words should include students' reading and writing vocabularies.

⁶⁷ From *Teaching writing, balancing process and product*, by G. Tompkins. Adapted and reprinted with permission.

- Maintain previously learned words by reviewing them frequently:
 - keep a word index
 - maintain and use a personal spelling dictionary. Some students keep a personal dictionary of “bug words” — the words they have had the most difficulty spelling.
- Teach for transfer of learning. Once mastered, provide opportunities for students to use and see spelling words in context. Hold students accountable for continuing to correctly spell words they have mastered.
- Motivate students to spell correctly. Use games and meaningful activities to help create a positive attitude toward spelling.
- Include dictionary training.
- Encourage visualization — teach students to see a visual image of the word.
- Provide many opportunities for writing. Students who write a lot will have many practical experiences which contribute to knowledge about spelling processes.
- Use mnemonics for difficult words.
- Provide access to language masters for independent practice.
- Teach the use of dictionaries designed for “bad spellers” which present the common misspellings of words. The words are listed by their incorrect spelling and the correct spelling is provided.
- Teach the use of computer spell checkers or pocket spell checkers.

Strategies for Spelling

- Reinforce the idea of spelling as a thinking skill; e.g., How many syllables? Do you know another word that is similar? Do you know a rule that might fit this word? Do not ask, “How do you spell _____?”
- The following is a cognitive strategy approach to teach spelling as a thinking skill.⁶⁸ Effective spelling is a combination of phonics knowledge and the linguistic structure of words. Wong developed the following set of steps for self-questioning. Students can be given prompt cards to help remember the steps.
 1. Do I know this word?
 2. How many syllables do I hear in this word? (Write it down.)
 3. I’ll spell out the word.
 4. Do I have the right number of syllables down?
 5. If yes, is there any part of the word I’m not sure of the spelling? I’ll underline that part and try spelling the word again.

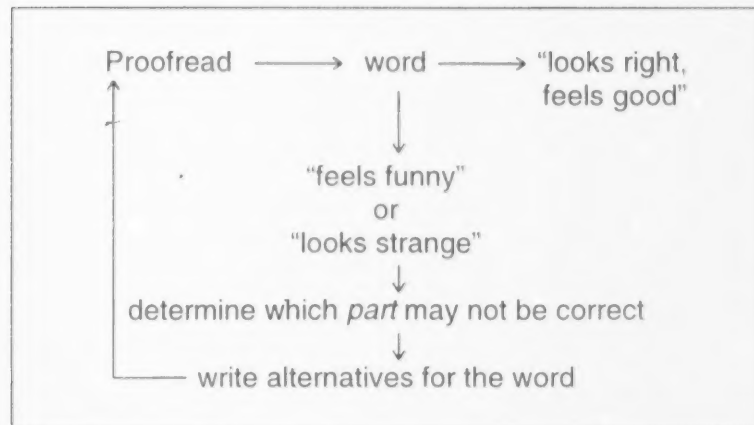
⁶⁸ From “A Cognitive approach to teaching spelling,” by B. Wong. Adapted and reprinted with permission.

6. Now, does it look right to me? If it does, I'll leave it alone. If it still doesn't look right, I'll underline the part I'm not sure of and try again. (If the word I spelled does not have the right number of syllables, let me hear the word in my head again and find the missing syllable. Then I'll go back to steps 5 and 6.)
 7. When I finish spelling, I tell myself I'm a good worker. I've tried hard at spelling.
- Involve students in discussions about spelling. Show them that learning about spelling involves looking for syllables, patterns, root words, prefixes, suffixes and endings. Tarasoff (1990, p. 53) notes that the "spelling of words can seem illogical if the relationships between the word meanings and spelling patterns are not perceived." Draw students' attention to patterns and relationships between words. Eliminate any potentially ambiguous information. Group words that share visual similarities; e.g., call, ball, hall, mall.
 - Teach homonyms and their usage.
 - Have students come up with meaningful associations to remember the difference between two words; e.g., witch and which. The "witch" at Halloween wears a hat on top of the "t" and "which" means you have to decide and has two "h's."
 - Link the new information to something the student already knows. If the student knows how to spell "teach," introduce the words reach, peach.
 - Give the student many and varied opportunities to practise newly learned words. Have students use visualization strategies:
 - read the word
 - say the word
 - visualize the word
 - copy the word saying the letters as they write; repeat this five times
 - write the word from memory, repeat
 - write the word in the air, repeat
 - write the word with eyes closed, repeat
 - spell it aloud.
 - Teach the following progression for practising words:

LOOK	at the word in order to remember what you have seen
SAY	the word
COVER	the word so that you can't see it
WRITE	the word from memory, saying it softly to yourself
CHECK	what you have written. If it is not correct, don't alter it but go back and repeat the steps again.

- Don't teach confusing words in the same lesson; e.g., words like "was" and "saw."
- Begin teaching small units, moving to larger units. For example, teach letter patterns such as "own." Then add beginning letters and blends to make new words: clown, down, crown.
- When words which do not fit the phonetic analysis system are taught, the student should be shown ways to remember the exceptions; e.g., Have does not follow the usual "magic e" rule.
- Provide enough repetition to establish the new information securely in long-term memory. Strive for the student to become automatic at the task. Use computer games like "Spell Bound" and board games like "Scrabble" to make this task fun.
- According to Tarasoff,⁶⁹ proofreading is "an integral and essential part of the spelling and writing process . . . many good spellers experience a feeling of discomfort when they see an incorrectly spelled word. They may say, 'It doesn't look right' or 'feels funny. . .'" The following process can be used as a cue when proofreading:

Diagram of the Proofreading Process



⁶⁹ From *Spelling strategies you can teach*, by M. Tarasoff. Adapted and reprinted with permission.

- Spelling Cards/Boxes is a strategy adapted from the Edmonton Academy's⁷⁰ Irregular Word Spelling method. Students maintain their own personal file of spelling words taken from written work and weekly irregular spelling pre-tests. The words are written (if students use handwriting), not printed, on index cards (because of the flow that writing creates).

Students trace over the letters of a word card three times, saying the word and then the letters to themselves; e.g., wolf, w-o-l-f, wolf (repeat twice). Then, students turn the card over and write the word three times from memory on the back of the card. Then, they check the spelling on the back of the card with the correct spelling on the front. This should be done once a day.

On Friday, conduct a post-test. Move the cards of the words spelled correctly from "to learn" section to "I know" section of a file box. Words are filed alphabetically.

Individual spelling tests can be given to move additional words from "to learn" to "I know" sections. Regular reviews or spelling checks should be done to maintain "I know" words.

- Spelling Workshop⁷¹
A spelling workshop includes activities that can be completed within a 20-minute period. The following is a weekly overview of daily activities:

Day 1

- Select the unit for pre-test.
- Give the pre-test.
- Have students correct their own work.
- Generate a spelling list for the week. Include misspelled words from the pre-test and any words students want to learn how to spell (allows for individualization and student choice). The length of the list is determined by spelling ability.
- Make two copies of the weekly spelling list: one stays at school for practice, the other goes home.

Day 2

- Give students their lists. Have students take home their lists of words. Provide specific ideas for parents to use when working with their children.

Days 3, 4

- Use a variety of activities within the classroom, so students learn and practise the spelling words on weekly lists. Remember 20 minutes a day is long enough for this component.

Day 5

- Post-test. Have a peer partner give the post-test. Each partner gives and corrects the other's work.

⁷⁰ From *Irregular word spelling method*, by Edmonton Academy. Adapted and reprinted with permission.

⁷¹ From "Adapting the spelling basal for spelling workshop," by M. F. Opitz & D. Cooper. Adapted and reprinted with permission.



for Creating a Community of
Mathematicians

- Teach students to be metacognitive mathematicians. Encourage communication of ideas between the teacher and fellow students through discussions, active questioning, diagramming, graphing and writing about their understanding of processes, concepts and feelings about mathematics.
- Model your own think-aloud process for arriving at a solution to a problem. See page LD.102 for the process.
- Encourage self-monitoring strategies.
- Have literature; e.g., counting books, number books, mathematical concept books, etc. as part of the reading centre in order to link mathematics to reading and writing (Gailey, 1993).
- Stress the importance of mathematics as a life skill through the use of real-life situations.
- Incorporate a problem-solving approach into all curriculum areas.
- Encourage students to create their own mathematical word problems and to share these with their peers.
- Encourage students to look for patterns.
- Discuss why certain answers are correct or incorrect.
- Emphasize creative and active learning strategies. Avoid rote responding.
- Use a variety of tools to demonstrate various coping strategies; e.g., calculators.
- Keep a notebook with examples/models of different processes for students to use as a reference; e.g., steps in long division.

General Strategies for Mathematics

- Whenever possible, model the concept to be learned on the overhead or by using manipulatives.
- Provide the student with a permanent model of the completed problem.
- Have students use manipulatives whenever possible.
- Reduce the number of problems assigned on a page or enlarge problems.
- Encourage the student to use a finger or highlighting marker to keep place on the page.
- Minimize the number of exercises that require copying from the blackboard.
- Provide instructions both visually and auditorally.
- Provide the student with a choice; e.g., do any 10.

- Use graph paper, or wide-lined paper, or turn lined paper on its side to help students organize their computation of numbers.
- Include a preview in your lesson to review or teach the pre-skills needed for the new concept.
- Encourage the highlighting or circling of questions to prevent confusion between the question number and the numbers in the calculation; e.g.,

$$\begin{array}{r} 25 \\ \times 13 \\ \hline 75 \\ 250 \\ \hline 325 \end{array}$$

$$\textcircled{1} \quad \begin{array}{r} 42 \\ + 31 \\ \hline 73 \end{array}$$

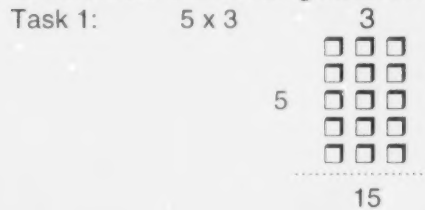
- Have students highlight the same type of question on a page of mixed mathematics questions to avoid confusion.
- Highlight key vocabulary words in directions on consumable tests and worksheets. Where permitted, photocopy single non-consumable materials for the student to do the same.
- Have students talk aloud while working through a problem or calculation to assist in their organization process and to provide the teacher with insight regarding the approach being used.
- After completing their work, have students ask themselves: Does my answer make sense?
- Encourage students to initial the bottom of their workbooks or pages to indicate they have double-checked their work.
- Provide opportunities for students to work with partners or in small groups to check their work and talk about the learning.
- Provide students with visual stimuli (charts) that depict vocabulary, symbols or steps.
- Have students perform work on the blackboard, overhead transparency or computer.
- Expose students to the broad range of vocabulary words in mathematics.
- Create an environment that encourages success in mathematics.
- Reward and highlight students' achievements and/or strengths.
- Use positive reinforcement techniques.
- Set up cooperative learning teams.
- Set attainable goals with students.
- Provide immediate specific feedback for correct and incorrect responses.
- Encourage students to sketch a diagram for mathematics problems.
- Encourage students to use a cue card or post-it notes to keep their spot on the page.
- Make a window in a cue card for column addition.
- Use games for reinforcement and practice.

Specific Strategies for Mathematics

- Use Mercer's⁷² concrete—semi-concrete—abstract sequence (CSA) to help students understand mathematical concepts, operations and applications.

Concrete

The student begins at the concrete level using manipulatives to demonstrate the following relationship:



The student then counts sets of three objects to show multiples of three. For example, show three sets of three:

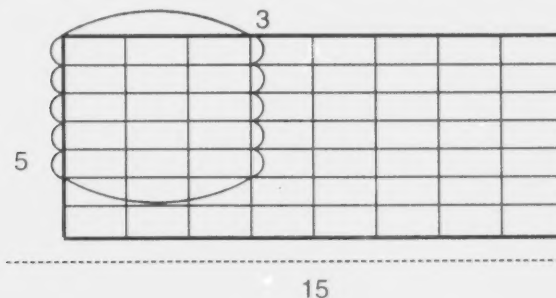


Semi-concrete

The student uses an array to demonstrate 5×3 :



Next have the student demonstrate 5×3 on a grid:



Abstract

$5 \times 3 = \underline{\quad}$ learned primarily from memory.

⁷² From *Students with learning disabilities*, by C. D. Mercer. Adapted and reprinted with permission.

- Teaching concepts and rules is important in assisting students' understanding of mathematics; e.g., commutative property of addition aids in learning addition. Show the commutative principle in the following way:⁷³

⊛ ⊛	⊛ ⊛ ⊛ ⊛	$2 + 4 =$
⊛ ⊛ ⊛ ⊛ ⊛ ⊛		$2 + 4 = 6$
⊛ ⊛ ⊛ ⊛	⊛ ⊛	$4 + 2 =$
⊛ ⊛ ⊛ ⊛ ⊛ ⊛		$4 + 2 = 6$

- Learning rules helps facilitate acquisition of concepts; e.g., any number multiplied by 1 remains unchanged: $5 \times 1 = 5$.

Curriculum Areas in Mathematics

Refer to Alberta Education's *Program of Studies K-9 Mathematics, 1996* and *Diagnostic Mathematics Program* for specific strategies for dealing with the mathematical processes of: communication; connections; estimation and mental mathematics; problem solving; reasoning; technology and visualization; and content areas of number, patterns and relations, shape and space; and statistics and probability.

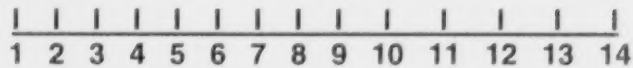
Problem Solving

- Encourage students to visualize, act out, draw or use manipulatives.
- Highlight key words or sentences that are relevant to the problem. Delete irrelevant information.
- Provide charts or cue cards highlighting steps or procedures.
- Encourage estimating, guessing and predicting possible solutions or answers.
- Have students consider the plausibility of the answer.
- Encourage thinking aloud as students proceed through a problem.
- Paraphrase and personalize word problems.
- Attend to all parts of a problem using a checklist as a guide.
- Encourage working in pairs or small groups to enhance problem-solving strategies.
- Have students create their own word problems and share these with peers.
- Allow the use of a calculator to ensure that it is not the operation that the student is getting "stuck" on.
- Encourage students to ask themselves the question, "What is the problem?" before beginning to solve it.

⁷³ From *Educational diagnosis and prescriptive teaching*, by D. Prillaman & J. C. Abbott. Adapted and reprinted with permission.

Number

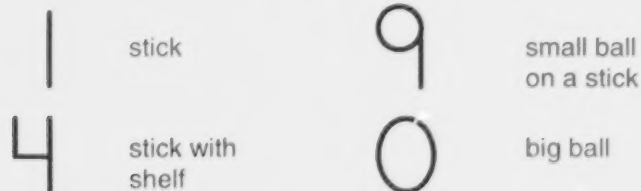
- Use a ruler or number line to assist in counting.



- Use calculators or multiplication times table charts.
- Teach mnemonic strategies for division; e.g.,

Doctor	Divide/Record
Mister	Multiply/Record
Sir	Subtract/Record
Dad	Divide
Mother	Multiply
Sister	Subtract
Brother	Bring down next number

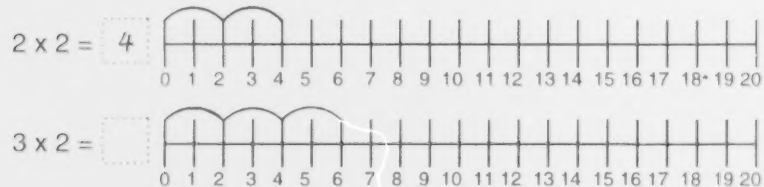
- Play mathematics games; e.g., tic-tac-toe, concentration.
- Use flash cards.
- To help students conceptualize numbers, encourage them to associate numerals with pictorial cues.⁷⁴ Numerals 1, 4, 5, 7 and 9 can be referred to as sticks. The horizontal lines can be referred to as shelves. The high oval shape of 0 can be referred to as the big ball and the small circular shapes in the numerals 6, 8 and 9 can be referred to as small balls. Sometimes large balls are cut in half as in the case of 2 and 6. Small balls cut in half are 3 and 5. For example:



- When teaching even numbers, begin with manipulatives. Show students a set number of items and have them duplicate the set with their manipulatives. Pair up the members of the set stating that there are no numbers alone. Have them do the same. Explain that when members of a set are matched up in pairs, we say the number of the set is even.

⁷⁴ From *Diagnostic and remedial mathematics in special education*, by G. Giordano. Adapted and reprinted with permission.

- To teach multiplication,⁷⁵ mark out a number line on the floor, using masking tape. Explain that we can interpret an expression such as 3×2 as meaning 3 jumps of 2 steps each. Ask students to walk or jump the expressions on the number line. Students may also demonstrate expressions using number lines worksheets. In each row there is a multiplication expression and a number line. Students show what the expression means on the number line. This activity may also be modified so that students provide the expression for the one represented on the number line.



- Use financial data from newspapers.
- Use "Mad Minute" mathematics drills to increase students' speed. In mad minute drills, students are given a worksheet containing a specified number of computation problems; e.g., 30 addition facts, sums of 10 or more. Students complete as many problems as they can within one mad minute. They are given similar worksheets over several days and they chart improved speed and accuracy in solving these problems. They then go on to more difficult computations or a different operation.
- Use a systematic approach, from Mercer & Mercer,⁷⁶ to teaching multiplication facts.
 - Teach that 0 times any number is 0.
 - Teach that 1 times any number is that number.
 - Teach that 2 times any number means double that number:
 2×3 means $3 + 3$.
 - Teach that 5 times any number involves counting by 5s the number of times indicated by the multiplier. For example, 5×6 means counting 5, 10, 15, 20, 25, 30.
 - Teach the trick in learning the 9s: subtract 1 from the multiplier to obtain the tens digit. Then add enough to it to make 9 to obtain the ones digit. For example: $9 \times 4 = 36$ — 3 is one less than 4 and $3 + 6 = 9$. To self-check, students make sure the numbers in the product add up to 9; e.g., 36: $3 + 6 = 9$; 45: $4 + 5 = 9$.

⁷⁵ From *Learner activity program for developmental mathematics*, by J. F. Cawley et al. Adapted and reprinted with permission.

⁷⁶ From *Teaching students with learning problems*, by C. D. Mercer & A. R. Mercer. Reprinted by permission.

6. Now there are only 15 facts left to be memorized:

$3 \times 3 = 9$	$4 \times 8 = 32$
$3 \times 4 = 12$	$6 \times 6 = 36$
$3 \times 6 = 18$	$6 \times 7 = 42$
$3 \times 7 = 21$	$6 \times 8 = 48$
$3 \times 8 = 24$	$7 \times 7 = 49$
$4 \times 4 = 16$	$7 \times 8 = 56$
$4 \times 6 = 24$	$8 \times 8 = 64$
$4 \times 7 = 28$	

Some teachers report that these facts are learned faster by grouping the doubles (3×3 , 4×4 , and so on), leaving only 10 facts.

- Use rhymes, chants and songs for learning basic facts.
- Record speed drills on a cassette tape for use at a learning centre.
- Teach fact "families"; e.g., all plus and minus facts related to five.
- Make sure students are proficient in one operation before introducing another.
- Use the following sources of numbers to teach place value to older students:⁷⁷
 - an odometer
 - numbers from students' mathematics or science texts
 - numbers from the population of the school, city, province, country
 - use popsicle stick bundles to demonstrate the process of borrowing in subtraction, etc.
 - use base-10 sets.

Patterns and Relations

- To enhance counting by 2s, 5s, 10s or to 100:⁷⁸
 - Practise skip counting by 2s, 5s and 10s.
 - Duplicate the following table and have students count by 2s and circle the numbers in red as they count. Then have them count by 5s and circle those numbers in blue while counting. Finally, have students count by 10s and circle those numbers in green. Then have students count by 2s, 5s and 10s without referring to the table.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

⁷⁷ From *Strategies for teaching students with learning and behavior problems*, by C. S. Bos & S. Vaughn. Adapted and reprinted with permission.

⁷⁸ From *Educational diagnosis and prescriptive teaching*, by D. Prillaman & J. C. Abbott. Adapted and reprinted with permission.

- Have the students play "Buzz."⁷⁹ Tell the class that they will be counting by 5s (for example) and have them stand. The students count by 1 in sequence but students in the 5s sequence say "buzz" instead of the number; e.g., 1, 2, 3, 4, buzz, 6. Those who say the number instead of buzz, must sit down. (Note: 10 equals buzz-buzz, 15 equals buzz-buzz-buzz, and so on.)
- Model the counting pattern for 2s, 5s and 10s (on the table on the previous page) to help students create a pattern for 3s, 4s and 6s.
- Relate counting by 2s, 3s, 4s, 5s, etc. to multiplication tables of 5 x 5, 7 x 7 and 9 x 9 to reinforce multiplication facts.

Shape and Space

- As each measurement unit is taught, the student needs to learn the vocabulary and concepts, and then the application of these concepts to real-life problems.⁸⁰
- Incorporate real-life activities to the learning situation; e.g., following a recipe, making a model.
- Include estimation to develop mathematical reasoning and to examine results using their mathematical knowledge.
- Teach time in chunks (hour, half hour, minute).
- Use a digital clock.
- Teach students to match, recognize and identify the time on a clock, with the time written in digital form and written out.⁸¹



11:00 Eleven o'clock

- Have students visualize a variety of geometric configurations with and without manipulatives.

⁷⁹ From *Educational diagnosis and prescriptive teaching*, by D. Prillaman & J. C. Abbott. Adapted and reprinted with permission.

^{80, 81} From *Strategies for teaching students with learning and behavior problems*, by C. S. Bos & S. Vaughn. Adapted and reprinted with permission.

- Construct two- and three-dimensional figures using paper and cardboard.
- Use paper-folding techniques or mirrors to explore symmetry.⁸²
- Use real money to count out change and to demonstrate specific amounts.⁸³ Duplicate a list like the one below and ask the student to circle the item or items that are worth more in each line.
 - 1 quarter or 3 nickels
 - 90 cents or 2 quarters
 - 1 dollar or 99 cents
 - 89 cents or 9 dimes
 - 5 nickels or 20 pennies
- Give the student word problems like the following:⁸⁴
 - What three different coins would amount to the following?
36 cents 60 cents 30 cents
 - What four different coins would amount to the following?
31 cents 16 cents 45 cents
- Use computer and board games that involve money transactions; e.g., Monopoly.

Statistics and Probability

Mann, Suiter & McClung,⁸⁵ and Straker⁸⁶ recommend the following:

- Use graphing information in word problems.
- Convert graphical data into mathematical statements.
- Use the overhead to depict graphical information.
- Use newspapers and/or surveys to access graphical data.
- Have students make graphs of the items found in lunch boxes to practise collecting and handling data.
- Collect data on the number of coats and jackets worn to school, shelf space for shoes and boots.
- Use bus schedules to extract information; e.g., shortest length of time on a bus.
- Use the calendar to determine the future dates of specific numbers.
- Have students design a survey and discuss what information is being sought and how to obtain it.

^{82, 85} From *A Guide for educating mainstreamed students*, by P. H. Mann et al. Adapted and reprinted with permission.

^{83, 84} From *Educational diagnosis and prescriptive teaching*, by D. Prillaman & J. C. Abbott. Adapted and reprinted with permission.

⁸⁶ From *Talking points in mathematics*, by A. Straker. Reprinted with permission.

- Use dice, coins and cards to play games of probability; e.g., Yahtzee.
- Use maps to explore shape and space.

Mathematics — Junior High and Senior High School

Refer to Alberta Education's *Program of Studies K-9 Mathematics, 1996* and *Diagnostic Mathematics Program* for specific strategies for dealing with the mathematical processes of: communication; connections; estimation and mental mathematics; problem solving; reasoning; technology and visualization; and content areas of number, patterns and relations, shape and space; and statistics and probability.

There is a scarcity of research in the area of mathematics and learning difficulties, especially at the secondary level. Certainly, one characteristic of students with learning disabilities is that problems in mathematics have usually persisted since elementary school. Assessment should be conducted on an individual basis in relation to a given set of tasks or objectives, not on how the student performs in relation to others. Assessment should answer the following questions:

- What are the student's metacognitive patterns in the problem areas?
- Does the student appear to be motivated for increased competence development?
- Does the student attack problems systematically?
- Does the student primarily use trial-and-error strategies for problem solution?
- Does the student become easily frustrated when an immediate answer is not apparent?
- When the student is not immediately successful, is an alternative strategy readily available?
- What is the student's level of performance in reference to the concepts, relationships, skills and problem-solving ability in the area of persistent difficulty?
- What are the concerns expressed by the student?
- How does the student's evaluation compare with the kind of work that is presently required in school?
- Does the student have any suggestions for improving performance in the identified area?
- Does the student primarily need more practice in skill areas?
- Does the student attempt to check for accuracy?
- How does the student's performance compare across mathematics areas?

The use of probing questions to analyze the understanding of concepts is also valuable; e.g., Why did you do that? How do you know? Informal assessment and interviews can provide much valuable information.

Mathematics instruction at the high school level can serve either as the foundation for higher education or as the final formal instructional experience. Important areas for instruction include:

- functional competencies; e.g., calculations, estimation
- spatial relations and measurement — important life skills; e.g., measuring a room to find out how much carpeting is required
- consumer mathematics — ratio, proportion, per cent, interest, consumer credit
- problem solving as a life skill
- algebra and geometry — pre-requisite skills for higher mathematics if the student is continuing in this area.

General Strategies for Mathematics

- Use manipulatives; e.g., tangrams, geoboards or visual representations in a mathematics laboratory approach to solve problems and discover mathematics rules. This approach emphasizes active student involvement.
- Use content that is highly motivating for this age group and related to real-life experiences; e.g., reading odometers.
- Use calculators for routine calculations and as a tool for checking calculations.

Specific Strategies for Mathematics

- Examine students' errors. Is there a pattern? Are errors related to:
 - difficulty reading word problems?
 - using the wrong operation (but carried out correctly)?
 - difficulty with computation? Weak basic mathematics facts?
 - missing steps in carrying out an algorithm?
 - difficulty selecting relevant information?

Error patterns can be identified by examining work samples. Even more information can be obtained by having a student think aloud while performing problems and asking questions to better determine the reasons for errors.

- Examine the decisions made in solving a problem: What was done? How was it done? Why was it done?
- Use the banded approach for a mathematics class.⁸⁷
 - Band I, 5–10 minutes. Not necessarily related to other bands; review, maintenance or generalization activities.

⁸⁷ From *Teaching the learning disabled adolescent: strategies and methods*, by G. Alley & D. Deshler. Adapted and reprinted with permission.

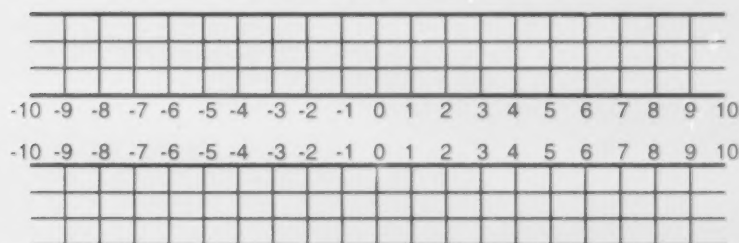
- Band II, 20–25 minutes. New concept is introduced and practised.
- Band III, 5–10 minutes. Choice: group problem-solving activity, or individual problem-solving activity, or mathematics lab activities. This approach is flexible. It considers the nature of the task and characteristics of the student.
- Use charts/cue cards for independent student activities.
Is two-thirds greater than or less than four-fifths?

1st Step	2nd Step	Solution
$\frac{2 \times 5}{3 \times 5}$ $\frac{4 \times 3}{5 \times 3}$	$\frac{10}{15} < \frac{12}{15}$	$\frac{2}{3} < \frac{4}{5}$
- Develop individualized learning activity packages for certain concepts; e.g., geometry. Students work through the package at their own rate.

- Work with negative numbers.⁸⁸

Adding and Subtracting

Provide two pieces of graph paper numbered as shown.



1. Select random number combinations such as $(+3) + (+2) = x$; $(+3) + (-2) = x$; $(-3) + (+2) = x$; and $(-3) + (-2) = x$.
2. Find the first addend on the lower number line.
3. Slide the upper number line so that the zero (0) position corresponds with the first addend on the lower number line.
4. Find the second addend on the upper number line.
5. The sum is the position on the lower number line that corresponds to the second addend on the upper number line.
6. Select random number combinations such as $(+3) - (+2) = x$; $(+3) - (-2) = x$; $(-3) - (+2) = x$; and $(-3) - (-2) = x$.
7. Find the minuend on the lower number line.
8. Slide the upper number line so that the zero (0) position corresponds with the minuend on the lower number line.
9. Find the additive inverse (opposite) of the subtrahend on the upper number line.
10. The difference is the position on the lower number line that corresponds to the additive inverse of the subtrahend on the upper number line.

⁸⁸ From *Teaching the learning disabled: a cognitive developmental approach*, by D. Reid. Reprinted by permission.

Parental Involvement

Parental involvement is important in the remediation of mathematical difficulties. Parents can assist in the programming process by:

- reinforcing the concepts taught in school
- assisting with homework
- helping their child apply mathematical skills to real-life situations
- encouraging practice of mathematical concepts; e.g., computer programs, games
- maintaining communication with teachers
- recognizing their child's efforts in mathematics
- reinforcing their child's strengths and assisting with the remediation process
- providing encouragement, support and understanding to enhance self-esteem
- providing opportunities to develop life skills from an early age; e.g., counting money, shopping, saving an allowance, opening a bank account, balancing a cheque book, using measurement for cooking, sewing, building, etc.

Science

Teach students to complete an overview of any reading material. The following suggestions can be adapted for use at all grade levels.

- Have students skim to see what is in the information:
 - note organization
 - main topics
 - use of diagrams.
- Involve students actively:
 - draw diagrams
 - make charts
 - make sample test questions.
- Study science vocabulary:
Have students use word structure and etymology to determine the meanings of words; e.g., prefixes and numbers as shown in the chart:

Amounts	Prefixes	Amounts	Prefixes
one	mono	eight	octa
two	di	nine	nona or none
three	tri	ten	deca or deci
four	tetra	general or many	multi-poly
five	penta	all	omni
six	hexa	half or partly	semi
seven	hepta		

Other Prefixes	
away from (absent)	a or ab
to or towards (advance)	a or ad
with or together (conform, cooperate, combine)	co, con, com
removal or separation (divide, detain)	de or di
outer (ectoderm)	ecto
out of (exhale)	e or ex
middle (mesoderm)	meso
again (repeat)	re
inner (endoderm)	endo
carry move (transport)	trans
same (homogeneous)	homo
equal (isosceles)	iso
different (heterogeneous)	hetero
aids, from the outside (paramedic)	para
small (microscope)	micro
light (photograph)	photo
large (macrocosm)	macro
heat (thermometer)	thermo
change (metabolic)	meta

- In younger grades, teachers can use concept cards for teaching vocabulary. Write or draw a picture of the definition on large index cards. Use them for review at the beginning of class. Have students quiz themselves or their partners. Do this for a couple of minutes in every science class to help students learn the terminology.
- When teaching new concepts, remind yourself to teach them through all modalities; i.e., visual, auditory and kinesthetic. Hands-on activities are particularly important for reinforcing and learning science concepts.
- Often the meaning of a word is given in the text the first time the word is used. Encourage students to try to understand the meaning then, but not to simply memorize it. They should think about the whole chapter or section and try to see how the meaning fits in with what they already know. You will know they understand the word when they can explain it in simple language and when they can give an example or use it correctly in a sentence they create.

- When students are in doubt about the meaning of an important word, encourage them to ask for clarification. They should not wait until the end of a chapter or the night before an exam to figure out what it means.
- Teach the process skills in science as a sequence of problem-solving steps. This sequence represents problem-solving steps which are transferable to other academic areas and practical life skills. They emphasize an organized and sequential approach to tasks:

Questioning/defining problems
Proposing ideas/hypothesizing
Materials and equipment
Designing experiments/procedures
Observing

What is the problem?
What will happen if . . . ?
What do I need?
What is my plan?
What is happening?
Am I following my plan?
How can I organize the information?
What have I learned?
How did I do?

Organizing information

Interpreting information
(evaluation, conclusions)

For further details refer to Alberta Education's *Program of Studies: Science*.

Using Science Diagrams

Strategies used to teach students to read prose can be adapted to teach students to read diagrams. The following, from Ireland's *Reading for Life*,⁸⁹ lists strategies for students to use:

- set a purpose — ask what the diagram is about
- think about what they already know about the topic
- scan the diagram to see how it is organized
- divide the material into sections
- read each section
- test themselves
- re-read as necessary.

On the following page, a sample diagram shows how these strategies might be applied.

⁸⁹ From *Reading for life*, by R. J. Ireland. Adapted and reprinted with permission.

Sample Diagram Exercise⁹⁰

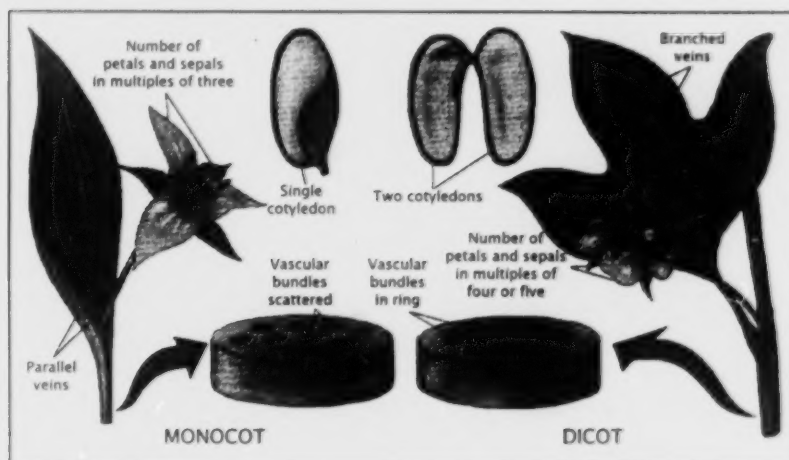


FIGURE 14-14. Monocots and dicots differ in seed structure, stem structure, vein pattern, and number of flower parts.

1. Set a purpose. What information is given after the number of the Figure 14-14 Use this information to set your purposes for reading simply by making questions out of the statements. For example, how do monocots and dicots differ in a) seed structure, b) stem structure, c) vein pattern, d) number of parts?
2. Review previous knowledge. Jot down a few points under each of those questions, stating what is already known about seeds, stems, etc. It may be helpful to write these in a chart after reading the diagram.
3. Divide the material. The questions divide the material. There are four questions, so the material can be divided into four parts.
4. Read each section. Look at the diagram first to study only the seed structure (the first question). Then examine the stem structure (the second question), etc.
5. Testing. Have students cover the diagram and add any new information they learned. When they have run out of ideas, they should uncover the diagram and check their work.
6. Re-read as necessary. The test indicates which parts of the diagram should be studied again. As a final test, with the textbook closed, draw the diagram and label the parts. Students check their work and study the parts that they didn't remember well.

Students may often find it helpful to study a diagram in this way before they read the text. By doing so, they have more knowledge to bring to the written text when they start to read. Teach students that diagrams need to be studied as carefully as written texts. They are important and often carry a great deal of information in a small space.

Entire page from *Reading for life*, by R. J. Ireland. Reprinted with permission.

⁹⁰ Figure 14-14 from "Monocots and dicots" in *Biology: living systems*, by R. F. Oram. Reprinted with permission.

Social Studies

Social studies materials frequently contain much information presented in a factual manner. As a result, readers frequently have information overload after reading only a few paragraphs.

Have students:

- Get an overview of the whole chapter by reading the headings.
- Divide the chapter into parts, headings and sub-headings.
- Ask a specific question that is likely to be answered in each part, using the words of the heading to make the questions.
- Note any sections printed in a different colour. Consider what kind of material is contained in these sections. When and how should these questions be read?
- Use the questions given in the text. (If there are none, make some up.) Write these questions in a notebook and leave five or six lines after each one.
- Read the material to find the answers to the questions.
- Answer the questions for each section.
- Make sure the answers respond to the questions.
- Re-read, re-think and change your answer if necessary.
- Use the R.A.P. strategy, outlined on the following page.
- Compare material found in two or more sources.

Newspaper Articles

- Newspaper articles can provide valuable information on many topics. Students need to know that they must read critically because writers have biases that students should be aware of. Suggest the following:
 - look for the writer's bias
 - expect the writer to give evidence for statements
 - assess the evidence to see if it is fair and if it corresponds to their own knowledge
 - watch for assumptions the writer makes.

Textbooks

Comprehension Strategies

- Teach students to use self-questioning techniques while they are reading texts; e.g., Is there anything here I don't understand? Let's see if I can summarize what I read, etc.
- Organize opportunities for paired reading. Paired reading sometimes works well for students with decoding disabilities who have competent comprehension skills. Instead of having students with learning disabilities read aloud, have them ask questions or supply answers for summaries. See RAP below.
- Archer & Gleason⁹¹ suggest the following teacher-directed chapter warm-up procedure. Students use these steps to find out what the chapter is about before they begin to read.
 - Step 1: Read the title of the chapter and the introduction.
 - Step 2: Read the headings and the subheadings.
 - Step 3: Read the chapter summary.
 - Step 4: Read the questions at the end of the chapter.
 - Step 5: Say, "This chapter will talk about _____."
- Archer & Gleason⁹² suggest a technique for helping students understand the relationship between textbook questions and answers. Students use this strategy when answering questions in the textbook.
 - Step 1: Read the question carefully.
 - Step 2: Change the question into part of the answer and write it down.
 - Step 3: Locate the section of the chapter that talks about the topic. Use the headings and subheadings to help.
 - Step 4: Read the section of the chapter until the answer is found.
 - Step 5: Complete the answer.
- R.A.P.⁹³ is a reading strategy that can be used when reading passages for meaning and for studying. It works well for individuals, paired groups and choral reading. Students should:
 - Read a paragraph, silently thinking about what the words mean.
 - After reading the paragraph, stop and ask themselves what they have just read; e.g., What were the main ideas and details of this paragraph?
 - Put the main ideas and details in their own words. Try to give at least two details related to the main idea.



^{91, 92} From *Skills for school success*, by A. Archer & M. Gleason. Adapted and reprinted with permission.

⁹³ From *SPELT: a strategies program for effective learning and thinking: a teacher's manual*, by R. Mulcahy et al. Adapted and reprinted with permission.

Suggested Compensations

- Make or acquire taped versions of textbooks and novels for students who have difficulty with grade-level textbooks.
- Ask student or adult volunteers to make a taped version of a textbook. The following are suggested as guidelines for preparing these tapes.⁹⁴
 - Keep text segments clear and short.
 - Tape a synopsis or outline of the text segment prior to the actual reading.
 - Give clear directions to the reader regarding page numbers and locations of items on a page.
 - Pause from time to time and review critical information.
 - Following this review, record questions for students to answer so that they are checking for memory and comprehension.
- Retain and recycle a few textbooks for specific students. Highlight the main ideas, supporting details, vocabulary and answers to questions. If different coloured highlighters are used for different purposes, the textbook becomes a useful tool for students with reading problems.
- Use alternative texts with low-level vocabulary and simpler presentation or reading level.

Note-taking

Copying notes from the board or overhead is difficult for students with perception or processing difficulties. This task is even more difficult when the teacher discusses the notes. There are too many things going on for the student to be able to concentrate on copying correctly. Copying notes does not assure learning of any kind; it can be done automatically without any processing of information.

- When lecturing, provide students with advance organizers outlining the key points so that the students can fill in the details. Advance organizers should be provided at the beginning of each unit or for each note-taking session.
- If the teacher's notes must be used, give students access to the notes and have students personalize them by turning them into mind maps, written or taped summaries or some system of note-making other than the teacher's.

⁹⁴ From "Adapting textbooks for children with learning disabilities in mainstreamed classrooms," by R. L. Meese. Adapted and reprinted with permission.

- Use charts to summarize pages of notes, especially for condensing and reviewing information on a variety of related subjects. Diagrams are useful for separating elements in problem solving or for plot charts of stories.
- Use a chart for point-form notes. The student makes a chart on a loose leaf sheet or in a notebook:

Main Idea	Supporting Details
This area can be	This section can be folded over so
used for questions	students can test themselves on the
as well.	details.

- Use group-made notes in a cooperative learning context. This is valuable because students have to find and isolate the main ideas and supporting details, process the information, and produce notes in consensus. For example, the teacher can supply a large printed copy of all the supporting details of a passage of text to each of the different student groups. Students construct the notes with the main ideas and the appropriate supporting details. Then, students make their own hand-written or computer-typed notes. The format of the notes may vary. Mind mapping works particularly well here. Teaching students to recognize patterns of organization is beneficial and can be done within the context of any course which requires notes; e.g. cause-effect, comparison-contrast.
- When students study (and many freely admit that they do not, because they do not know how) they should review their notes once a week. A simplified form of note-making, different from the original, should be used. If mapping was used as the initial form, written or taped summaries could be made. Assist students and encourage them to do more than read and re-read. Reading over their notes will not help them remember information for tests. Reciting their notes helps some students recall the information more easily and rhythmic movement helps other students. Doodling on topic may also help.

Assignments

Some students may have difficulties completing assignments. Students who have problems with reading or written expression may turn in incomplete reports, even when they know the material. Often they can respond better orally to a task, than they do in writing. There are a number of possible accommodations which may be made to help students demonstrate their learning.

- Allow alternate presentations such as taped essays, videos or oral presentations.
- Allow students to complete assignments using computers.
- Allow students additional time to complete written assignments.
- Shorten individual assignments.
- Decrease the number of assignments and/or the difficulty level.
- Provide alternative readings with lower-level vocabulary or use taped texts.
- Break long-term assignments into manageable units with deadlines for completing steps in the assignment; e.g., choose a topic by October 1, submit an outline by October 15, etc.

Tests

Some students may not be able to succeed when presented with a regular class test. They may have difficulty reading the test, completing the required reading and writing within time limits, with written responses, organizing their time efficiently, with anxiety related to past experiences of failure, etc. Some accommodations follow.

- Allow oral responses to test questions.
- Provide a taped version of the test.
- Read the test questions to the student.
- Allow use of a tape recorder for taping responses to essay-type questions.
- Allow the use of a word processor or a scribe for students with writing difficulties.
- Allow extra time for completing the test.
- Allow the use of a calculator, dictionary, thesaurus or spell checker, if appropriate.
- Provide alternate locations for writing the test for students who have difficulty concentrating or performing due to test anxiety.

Alberta Education Provincial Achievement Tests and Diploma Examinations

Students who have been assessed as having a learning disability and/or a physical disability and who have individualized program plans identifying necessary provisions, may be granted special provisions when writing provincial achievement tests and diploma examinations. For information about special provisions for diploma examinations, teachers/administrators should refer to the *General Information Bulletin, Diploma Examinations Program*. Information about special provisions for the provincial achievement tests can be obtained from the *General Information Bulletin, Provincial Student Assessment Program, Grade 3, 6, and 9*. These documents are published by the Student Evaluation Branch, Alberta Education and include information about procedures for applying for special provisions and the types of special provisions available to students when writing provincial tests/exams.

Provisions available to students with a documented learning disability and/or physical disability include: additional writing time, use of a scribe, large print or braille version of the test, taped response, use of a word processor, sign language interpreter, audiotape version of the test or use of a reader (for achievement tests only).

The two most common special provisions applied for are additional writing time and an audiotape version of the test. Students may be provided with either a reader or audiotape version of the test in Grade 3, although most teachers feel a reader is more appropriate for Grade 3 students. Audiotaped versions of these tests are usually provided for Grade 6 and 9 students. However, a reader may be approved for these students in specific instances. However, it should be noted that students will not be permitted to use a reader for the Grade 12 Diploma Examinations. An audiotape version of the test may be provided. Students who require this special provision in Grade 12 should become familiar with the audiotape format as early as possible.

The deadlines for application for any special provisions are specified in the General Information Bulletins which are sent to all schools in the fall. It is critical that administrators and teachers are aware of the information contained in these bulletins and submit applications for special provisions within the timelines specified in these publications.

Social/Adaptive Domain

Self-esteem

Strategies presented in this section address three important aspects for effective functioning in the social/adaptive domain: developing positive self-esteem and self-monitoring, and enhancing prosocial skills.

Self-esteem refers to the feelings we have about ourselves; how we evaluate ourselves. For example, do we feel that we are capable or incapable? Competent or incompetent? In control or dependent? Intelligent or not? Do we approve of ourselves or find ourselves lacking? No one is born with self-esteem. Self-esteem develops on a daily basis as an individual accumulates experiences. People's feelings can be affected negatively if an ongoing discrepancy develops between how people perceive themselves and how they think they should be.

According to Richard Lavoie, the research indicates that individuals with learning disabilities are:⁹⁵

- more likely to choose socially unacceptable behaviours in social situations
- less able to solve social problems
- less likely to predict consequences for their social behaviour
- less likely to adjust to the characteristics of their listeners in discussions or conversations
- less able to accomplish complex social interactions successfully
- more likely to be rejected or isolated by their classmates and peers
- more often the objects of negative and non-supportive statements, criticisms, warnings and negative nonverbal reactions from teachers
- less adaptable to new social situations
- more likely to be judged negatively by adults after informal observation
- likely to receive less affection from parents and siblings
- less tolerant of frustration and failure
- likely to use oral language that is less mature, meaningful or concise
- likely to have difficulty interpreting or inferring the language of others.

⁹⁵ From *Teacher's guide to last one picked . . . first one picked on: learning disabilities and social skills* with Richard Lavoie, by R. Lavoie and Greater Washington Educational Telecommunications Association. Adapted and reprinted with permission.

For many students, making friends, learning how to cooperate, making decisions and solving problems are natural. They easily develop a sense of identity and belonging. The characteristics of a student with learning disabilities makes it much more difficult to form meaningful relationships. Self-esteem comes from feelings of worthiness, belonging, competence and having influence or power. Students who lack self-esteem may feel controlled or manipulated by others. They may react defensively to avoid coping with the demands placed upon them, deny there is a problem, isolate themselves or escape through truancy or drug and alcohol abuse.

Self-esteem, self-control and problem-solving mastery are best achieved when students feel they are in a safe, secure, predictable and stable environment where expectations and boundaries are clearly defined. The process of building a student's self-esteem needs to be a conscious, purposeful process that is implemented in a systematic manner.

To assist in fostering self-esteem, teachers should:

- Recognize it is important for students to make decisions for themselves.
- Acknowledge that students' behaviours, feelings and experiences are open to mutual discussion.
- Accept that students have negative and positive feelings.
- Recognize that giving students permission to express feelings leads to an increased ability to distinguish between wishes and fantasies, and reality.
- Help students to increase their use of positive self-talk.
- Be aware of what stresses individual students.
- Outline learning objectives clearly for students, checking off those objectives students have accomplished.
- Encourage self-reliance by helping students look first to themselves for what they can do, then if they require assistance, teach them how to ask for help and where to get it.
- Label the behaviour, not the person.
- Recognize the importance of winning students' trust and respect.
- Provide students with a positive model of appropriate social skills.
- Increase awareness of traits that are widely-accepted and admired by peers, such as smiles/laughs, greeting others, extending invitations, conversing, sharing and giving compliments.
- Work in concert with the home to ensure that target skills are reinforced and monitored.

The following strategies can be used to foster self-esteem.

Locus of Control (See definition on page LD.26.)

To help students develop an internal locus of control, teachers should:

- Reinforce students' roles in successes. Say, "You did well; you must have studied last night," or "Good job; you really worked hard on that."
- Ask students why they think they did well on a test or assignment. Encourage them to relate the success to their own efforts, skills or abilities.
- Have students repeat tasks they have completed successfully or complete similar tasks to ensure they understand that they are responsible for their achievements.

Structure, Support and Security

- Students should actively participate in developing rules in order to promote ownership, understanding and responsibility.
- Try to limit rules to a few in number and word them in positive terms; e.g., "No students in the computer room without adult supervision," becomes, "Students are welcome in the computer room with adult supervision."
- Rules should be worded clearly and all students should be aware of positive and negative consequences attached to them.
- Set limits that are realistic and make sure students know the difference between what is acceptable and unacceptable; e.g., talking quietly with other students is OK in this setting but not in this one. One suggestion is to use a traffic light to indicate the classroom expectations to do with talking: red = no talking; yellow = quiet talking with a partner; green = large group sharing.
- Be consistent when enforcing rules or expectations. It is important to make sure that all teachers involved with a particular student are applying the rules in the same way so that there is no confusion.
- Have regular discussions with students about the strategies they use in order to successfully follow the rules and make appropriate choices. Recognize students for their success but tailor recognition to individual comfort levels; e.g., some students are embarrassed by public praise, wording of praise has to fit within an individual's terms of reference; e.g., maintaining face with peers, etc.
- Develop your relationships with students. Be honest, follow through on any agreements and maintain confidences. A confidence cannot be kept in instances of abuse or neglect; students need to be aware of this limitation or they may feel betrayed.

Teach Students to Appreciate Themselves and Others

- Reinforce students for making positive self statements. Teach and model positive self-talk; do not allow put downs of anyone. Teach students to reply, "That is a put down and I will not accept it."
- Provide specific positive feedback to students about a task or a part of a task that they have done well; e.g., "good work" is too general. Try to be specific and realistic; e.g., I like the way you worded that last sentence.
- If critical feedback is required, be sure to address the behaviour, not the person; e.g., "This behaviour is inappropriate," not, "You are extremely rude."
- Regularly recognize students' strengths. Students with learning disabilities need to have a strong understanding of personal strengths in order to compensate for their weaknesses. A strong sense of strengths not only contributes to self-esteem but helps students with learning disabilities accept their weaknesses and have the confidence to advocate appropriately for accommodations to meet their needs.
- Address any occurrence of inappropriate behaviour in the context it occurs.
- Be cautious when using "but" statements. Be aware that most people hear and likely internalize what is said after the "but." Frequent use of "but" statements has a negative impact on the development of a student's self-esteem.
- Strive to instill a sense of hope in the student.
- Encourage students to create "hope kits".⁹⁶ A hope kit can be a useful support when students experience challenges to their attitudes. In the same way students need concrete learning experiences in academic areas, they need concrete representations of successful experiences. Suggest that students create a special container for their hope kit, such as a small decorated box or a hand made bag. Encourage students to keep samples of their work, pictures of themselves successfully participating in school and class, and certificates, rewards and positive accolades from other students and teachers. A hope kit can contain items from all aspects of the student's life. Remind students to take some time with their kits when they are feeling down, to remind themselves of other possibilities. A hope kit can also be a valuable tool if students move to new environments and feel alone.
- Model caring, respect and acceptance. Be sure to address students by their names, make eye contact, remember things about students' personal interests so that they feel important and accepted.

⁹⁶ From R. F. Jevne and The Hope Foundation. Reprinted with permission.

- Teach the appropriate group behaviour and personal responsibilities necessary to make a group activity successful.
- Plan activities that highlight individual strengths, talents, hobbies, cultures, etc., to widen appreciation and acceptance of all individuals.
- Teach, model and reinforce social skills. See page LD.209 for prosocial skills.

Enhance Personal Responsibility

- Reinforce attempts of students to problem solve and think for themselves.
- Help build skills in making choices and decisions. This involves the teaching of strategies for decision making and for solving both academic and social problems. Whenever possible, students need to be included in the decision-making processes that affect them within the school and classroom. Try not to tell students what they should do. Start with providing a few choices so that the student has to participate in evaluating the alternatives. Increase the number of options or have students generate their own options as skills develop. The ultimate objective is to have students who can determine what strategies or options are most appropriate and best suited to their individual needs. See pages LD.101–104 for problem-solving strategies.
- Provide encouragement and support. Reinforce students' progress toward following through on a decision or completing a task or goal. Teachers may need to help students analyze progress, select further options and accommodations, re-think original goals or think of other materials and resources that would be helpful to complete the task. Sometimes all students require is an understanding listener who tells them that they are on the right track! Communication to parents about efforts and strategies is important so that they too can celebrate positive efforts and learn about strategies their children have used and found helpful.
- Model and encourage strategies for self-monitoring and self-evaluation. See pages LD.212–215 for more information on self-monitoring.
- Teach the student to use mistakes wisely. Mistakes have causes and indicate temporary unreadiness. Fear of mistakes can cause feelings of "learned helplessness," the feeling that regardless of what they do, students cannot bring about positive change. Students are likely to assume increased ownership and responsibility if they feel they have freedom to make mistakes.

Help Students Set Reasonable Goals

- Teachers should model clear, positive and reasonable goals and expectations in tasks and assignments. There should be a clear message to all students that everyone can succeed and learn in this classroom. See pages LD.109–110 for more information on goal setting.
- Use student contracts, checklists or short-term challenges. Goals, however, should be quite specific to begin with and easily attainable; e.g., the student estimates how many pages of a chapter can be reviewed each night. The ultimate objective is to have students develop and internalize realistic and attainable goals for themselves.
- Reinforce attainment of goals no matter how small! Ongoing success with completion of goals helps to build risk taking.

Several commercial curricula are currently available which provide teachers with techniques and materials that can help students develop positive feelings about themselves. The step-by-step sequencing of skills with opportunities to apply learning successfully in safe environments is particularly suitable for students with learning disabilities. These titles are provided as a service only to assist school authorities to identify resources that contain potentially useful ideas. The responsibility to evaluate these resources prior to selection rests with the user, in accordance with any existing local policy.

Esteem Builders: A Curriculum for Improving Student Achievement, Behavior and School Climate; Building Self-esteem in Secondary Schools

Michele Borba and Robert Reasoner are two prominent researchers in the area of building self-esteem. Borba, in *Esteem Builders: A Curriculum for Improving Student Achievement, Behavior and School Climate*; and Reasoner, in *Building Self-esteem in Secondary Schools*, address five similar building blocks for self-esteem. See pages LD.338 and LD.342 for bibliographic information. The following building blocks are essential for students with learning disabilities as well.

1. Sense of security — feeling comfortable and safe, knowing what is expected, being able to depend on individuals and situations, and comprehending rules and limits.
2. Selfhood — a feeling of individuality, a sense of identity. Acquiring self-knowledge which includes an accurate and realistic self-description in terms of roles, attributes and physical characteristics.
3. Affiliation — a feeling of belonging, acceptance or relatedness. Feeling approved of, appreciated and respected by others.
4. Mission — the feeling of purpose and motivation in life-self-empowerment through setting realistic and achievable goals and being willing to take responsibility for the consequences of one's decisions.

5. Competence — the feeling of success and accomplishment in things regarded as important and valuable. Awareness of strengths and acceptance of weakness.

Both authors also outline how teachers can address these areas and provide structured lesson plans, activities and suggested resources. *Self-esteem: A Classroom Affair: 101 Ways to Help Children Like Themselves*, by Michele and Craig Borba, provides an additional 101 suggestions for building self-esteem. See page LD.300 for annotation. For more specific information, refer to social/adaptive resources which are listed on page LD.299.

In addition to complete curricula there are several useful resources which facilitate increasing the self-esteem of the student with learning disabilities.

A Teacher's Guide to Cooperative Discipline: How to Manage Your Classroom and Promote Self-Esteem

This resource assists in identifying the goal of a particular misbehaviour and provides specific intervention techniques to use at the moment of the misbehaviour. The resource looks beyond the teacher-student interaction brought about by the misbehaviour and suggests practical ways of creating future positive interactions that build student self-esteem. *A Teacher's Guide to Cooperative Discipline*⁹⁷ is based on three concepts of behaviour. See page LD.301 for annotation.

1. Students choose their behaviour. Students' decisions about how to behave can be influenced. The teacher needs to know how to respond to students so that they want to choose appropriate behaviour and comply with rules.
2. The ultimate goal of student behaviour is to fulfill the need to belong. To experience a strong sense of belonging in school, students need to:
 - feel capable of completing tasks in a manner that meets the standards of the school
 - believe they can connect successfully with teachers and classmates
3. Students need to know they contribute in a significant way to the group. If students are unable to be capable, to connect or contribute by behaving appropriately, they may try to achieve their goal of belonging by misbehaving. When students choose misbehaviour over positive behaviour, what they desire usually corresponds to one of these four goals:
 - attention

⁹⁷ From *A Teacher's guide to cooperative discipline: how to manage your classroom and promote self-esteem*, by L. Albert. Adapted and reprinted with permission.

- power, students want to be the boss of themselves, the teacher, sometimes the whole class
- revenge, students want to lash out to get even for real or imagined hurts
- avoidance of failure.

***The Tough Kid Social Skills Book*⁹⁸**

This book, developed by Susan Sheridan, provides specific methods to assess and teach tough kids appropriate social skills. For some students with learning disabilities, low self-esteem and lack of appropriate social skills are closely connected. Sheridan suggests six areas of skill and performance to assess during direct observations to help determine which areas need to be addressed. They include positive social skills, including social entry, playing cooperatively, solving problems; and negative social behaviours including verbal aggression, physical aggression, social noncompliance and isolation. See page LD.343 for bibliographic information.

One area that many students with learning disabilities have difficulty with is the area of initiating conversation. This can isolate them or result in behavioural difficulties. Self-esteem often suffers. Such students may also demonstrate difficulties understanding the importance of body language. This resource provides structured lessons in the area of body basics as well as steps to remember when initiating a conversation. Body basics are actions that students use when engaging in conversation with others. The mnemonic FEVER is used to help students remember the steps.

- F – Face the other person.
- E – Use Eye contact.
- V – Use appropriate Voice.
- E – Use the right Expression.
- R – Use the right body posture — Relax.

Teacher's Guide to Last One Picked . . . First One Picked On: Learning Disabilities and Social Skills with Richard Lavoie

This videotape provides several strategies for assisting students with learning disabilities. A student with learning disabilities has a hard time reading social situations and knowing how to act around others. Most students are able to interpret and understand facial cues, body language and other aspects of themselves and others in a situation, and respond accordingly. The student with learning disabilities often does not. One strategy suggested by Lavoie is the use of social autopsies. A social autopsy is a strategy employed by an adult to help a student to improve social skills by

⁹⁸ From *The Tough kid social skills book*, by S. M. Sheridan. Adapted and reprinted with permission.

jointly analyzing social errors that the student makes and designing alternative strategies. Social autopsies can be used to analyze successful social interactions when the student has been particularly appropriate in a social setting. The manner in which the social autopsy is conducted facilitates learning in real-life situations and increases students' self-esteem as they gain skills in problem solving. See page LD.341 for bibliographic information

***The Teacher's Encyclopedia of Behavior Management:
100 Problems/500 Plans***

Self-esteem stems from feeling valued. Finding an "island of competency" and offering ways for students to contribute builds self-esteem. Most students thrive on feeling needed and enjoy doing a job that is important and useful. Giving students responsibility at school encourages responsible behaviour and improves self-esteem. *The Teacher's Encyclopedia of Behavior Management* provides specific ideas for jobs for students within the classroom and the school. Students should be assigned jobs and responsibilities at home, as well, to foster a sense of belonging. It is important to do something and be someone in the eyes of others. Students are more likely to receive respect if they assume valued roles. Give students valued roles through involvement in student body organizations, sports, serving as office and teaching assistants, utilizing existing expertise. See page LD.301 for annotation.

Prosocial Skills

Students with learning disabilities experience social problems and are at risk for social neglect or rejection (Heron & Harris, 1993, p. 317). Social/behavioural competencies are clearly linked to students' performances in mainstream environments and may be more critical determinants of the success of special education students than academic achievement (Fad, 1990, p. 39). Consequently, teaching and reinforcing social skills are crucial for these students. Transference of skills tends to occur best if social skills training is incorporated into regular classroom programming, across subject areas and focuses on realistic or actual situations or problems that students can relate to.

There are a variety of prosocial skills training programs available. Many are made up of skills similar to those listed in McGinnis & Goldstein's *Skillstreaming the Elementary School Child: A Guide for Teaching Prosocial Skills*, 1984,⁹⁹ including:

- classroom survival skills — listening, asking for help, setting goals
- friendship making skills — sharing, asking to be included in a game, introducing themselves
- skills for dealing with feelings — knowing their feelings, sharing their feelings, handling anger
- skill alternatives for dealing with aggression — dealing with teasing, maintaining self-control
- skills for dealing with stress — relaxing, handling failure, being a good sport.

Structured programs are carefully researched and provide the typical sequence of social skill development. This is important because certain social skills are prerequisites for others. Students must be both developmentally and motivationally ready for social skills training. This does not mean however that the teacher must go through a social skills program teaching one listed skill after another. In fact, teachers should look at the specific needs of students in their classrooms and teach the skills that are the most needed for their students to interact and cope effectively. Then, the selected social skills should be taught in a structured and systematic way. A comprehensive approach to integrating social skills instruction into daily activities is presented in Alberta Education's document, *Enhancing Social Skills in the Classroom: ECS-Grade 3* (1991). See page LD.290 for an annotation.

⁹⁹ From *Skillstreaming the elementary school child: a guide for teaching prosocial skills*, by E. McGinnis & A. Goldstein. Adapted and reprinted with permission.

Gajewski, Hirn & Mayo (1993)¹⁰⁰ suggest the following components when teaching social skill units or concepts:

- Introduction — Preparatory set that includes a definition of the social skill, the steps used to execute the skill, a rationale for why it's important to use the social skill correctly.
- Modelling — The teacher models the correct use of the social skill, using appropriate tone of voice, showing appropriate and realistic feelings, showing at least two different situations in which the skill could be used; e.g., a situation from school and one from a community setting, cueing students to identify certain key parts of the modelling demonstration.
- Rehearsal — This is when students think about and visualize how to perform a social skill, reciting and rehearsing the skill steps involved.
- Role playing — Students should be able to choose whether they wish to participate or not. It is important to intervene if the students are not performing the skill correctly or not taking it seriously. Allow students to play more than one part of the role so that they can experience a number of points of view. Provide a number of opportunities for students to practise the social skills in role plays and have them work with several different students. A box of props is sometimes handy for role plays.
- Feedback — Provide immediate feedback after a social skill has been role played, or better still put to use. When giving feedback, be specific about the skill steps used in the social skill. Point out the positive parts of the role play before giving constructive criticism. Always provide oral feedback but consider written feedback to students and/or parents to let them know how they are doing, particularly if it is a targeted behaviour or skill for a particular student.
- Cognitive Planning — This step in social skills training addresses the need to develop metacognitive strategies to be effective in social situations. Students are encouraged to do independent thinking about social skills. They are provided with general strategies to use for any number of social skills in order to have a general plan about how to problem solve and handle situations on their own. Gajewski et al. (1993)¹⁰¹ use a cognitive planner made up of the following steps:

STOP: use self-control strategies to keep calm
PLOT: think about possible options, consequences and the social skills needed to carry out the plan
GO: carry out the plan
SO: evaluate how the plan worked, think about what to do differently the next time and congratulate themselves.

^{100, 101} From *Social star — general interaction skills, book 1: peer interaction skills*, by N. Gajewski et al. Adapted and reprinted with permission.

- Transfer/Generalization — This is the most important component of all. McGinnis & Goldstein¹⁰² indicate that while all the above steps are necessary, they will not necessarily maximize the chances of a student retaining or applying the skill unless it is transferred and generalized. They have provided a number of suggestions and maintenance strategies that could be incorporated into a structured social skills program, including:
 - instruction in the natural environments where the skill is actually needed
 - teaching peers, teachers, parents and others, to reinforce skill use. This is an important component of the program and most experts suggest that the parents in particular be informed about the social skills their children are using in order to participate in active reinforcement. Another reason why students do not exhibit a social skill is that they may not be reinforced for the performance of these skills in other situations
 - many programs have homework assignments in which students record the number of times they used a social skill appropriately or they are asked to practise the skill in a number of different settings; e.g., at home with parents or a sibling.

It is also important to note that not all problems with social functioning are due to a lack of social skill knowledge; e.g., some students can recite verbatim what they should have done, the skill involved and the choices available, but could not apply their knowledge when the situation arose. If this is the case, the student does not need to have the skill completely retaught (in fact they may resent this intervention) but needs to have the skill reinforced and rehearsed in a variety of settings in order for transference and application to be more likely. Often this student has impulse control difficulties and could also be taught self-monitoring strategies that may be helpful. Anxiety or other emotions might also interfere (managing stress strategies may be helpful here). Some students may not perceive their environment correctly. They may misinterpret social situations; e.g., an accident may be seen as a purposeful action. See Appendix 6, pages LD.299–301, for social skills programs and also *Teaching for Student Differences*, Book 1 of the *Programming for Students with Special Needs* series.

¹⁰² From *Skillstreaming the elementary school child: a guide for teaching prosocial skills*, by E. McGinnis & A. Goldstein. Adapted and reprinted with permission.

Teaching Global Awareness and Empathy for Others

Many social skills programs contain teaching components that involve interpersonal skills but few extend these to include lessons that involve students in providing service to others and their community. School and classroom projects that involve students working with other students, teachers, parents and community members are an excellent means for reinforcing and practising social skills. Students can actively participate in something that highlights caring and concern for others.

Other programs begin to incorporate more global issues and situations into their lessons once students have begun to use interpersonal social skills appropriately; e.g., differences and similarities between other cultures, tolerance and understanding for different attitudes and points of view. See the annotation on page LD.299 for *Learning the Skills of Peacemaking* by Naomi Drew.

Self-monitoring

Ultimately, educators want students to be able to monitor their own behaviours and performances. Training students in self-control strategies will promote academic and social behaviours in students presenting behaviour problems. Benefits include:

- increased:
 - attention span and on-task behaviour
 - self-concept and self-esteem
 - academic skills
 - task accuracy
 - responsiveness to questions
 - completion of homework
- decreased:
 - impulsivity
 - non-work oriented behaviour
 - anxiety
 - aggression
 - class absences.

The steps below describe a self-monitoring program,¹⁰³ which is designed to teach students how to increase their independence and ability to control their own behaviour.

- Step 1: Define target behaviour
 - behaviour may be any observable response
 - describe behaviour in specific terms.
- Step 2: Identify functional reinforcers
 - reinforcers will vary from student to student and may range from simple praise or free time to tangible items such as stickers or snacks
 - allow students to help select their own reinforcers to ensure that reinforcers are functional.

¹⁰³ From "Using self-monitoring to increase independence," by L. Dunlap et al. Adapted and reprinted with permission.

- Step 3: Design self-monitoring method/device
 - device provides a method for the student to record occurrences and/or non-occurrences of the target behaviour
 - type of device will depend on the target behaviour.
- Step 4: Teach the student to use the self-monitoring device
 - teach the student how to recognize the behaviour and to express whether or not the behaviour occurred
 - teach the student to record the occurrence and non-occurrence of the behaviour.
- Step 5: Fade use of the self-monitoring device
 - to increase independent responding and reduce or eliminate the use of the device, develop a fading procedure — slowly withdraw or de-emphasize the use of the self-monitoring device.

Examples of Self-monitoring Methods/Devices

- Counters can be useful in helping students monitor their behaviour. The student is asked to push the button on one of the devices in order to keep a count of the number of occurrences of the behaviour; e.g., number of times eye contact was made, number of times they called out, number of times they remained seated, etc.
- The following self-monitoring device could be taped on the student's desk to monitor "on task" behaviour. The student will also need a cueing system to signal when to self-monitor. For example, the student may periodically hear a tone from an audiotape set at designated intervals, or a quiet alarm on a wristwatch. This prompts the student to record on-task behaviour at that moment. They are to mark the appropriate box with "+" (yes, I am on task) or "0" (no, I am not on task). For other target behaviours, such as remaining seated, the student must be in his seat for the full interval to mark "+" (yes, I was in my seat).

Name: _____																																																													
Date: _____																																																													
AM I ON TASK?																																																													
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____ Yes (+) out of ____ possible = ____ % on task.																																																													

- The following devices are rating scales in which students are asked to rate their own behaviour according to the set criteria. Students may monitor a specific target behaviour or general behaviour overall. Prior to beginning this procedure, the teacher, in consultation with the student, would define the criteria for each point on the rating scale.

HAPPY NOTE			
Name:	_____		
Date:	_____		
Obeyed teacher without arguing			
Completed class work			
Obeyed classroom rules			
Got along well with others			

Daily Student Rating Card						
Name:	_____		Date:	_____		
1 = excellent, 2 = good, 3 = fair, 4 = poor, 5 = did not do						
	Class periods/subjects					
Area	1	2	3	4	5	6
Participation						
Class work						
Handed in homework						
Interaction with others						
Teacher's initials						

These are merely examples of self-monitoring methods and devices which have been effective. It is important to note that the method and device must be individualized to meet student needs depending on the behaviour which is being monitored.

- Reinforcement Sandwich**
Sometimes giving a student feedback about behaviour can be hard for the student. D. Kim Reid¹⁰⁴ suggests sandwiching the information to be given with some reinforcement:

Reinforcement: I've noticed how hard you've been working on your self-control today.

Information: Remember the step of counting 1-10 to give yourself time to formulate a plan.

Reinforcement: Keep it up! I know you can do it!

¹⁰⁴ From *Teaching the learning disabled: a cognitive developmental approach*, by D. K. Reid. Adapted and reprinted with permission.

- Thumbs Up Program (Reinforcing Positive Behaviour)
Thumbs Up is a simple and effective way of "catching students being good" to reinforce their behaviour. Establish a non-verbal signal, such as a wink, or thumbs up, or a tug on the ear, to let students know when they are displaying good behaviour; e.g., working on task, cooperating. Just say the student's name and give the signal which lets the student know you've noticed his or her good behaviour; then the student can colour in a square on a good behaviour chart or whatever system you devise. Reinforcement can be immediate and non-intrusive.
- Use a problem-solving approach to behaviour management.
View behaviour problems as problems to be solved and opportunities to learn alternate more appropriate behaviours. The following steps are undertaken as a shared process between teacher and students:
 1. Define the problem
 2. Generate alternatives
 3. Have students choose alternatives
 4. Evaluate the outcome/consequences.

Section 4

Other Learning Difficulties

Attention-deficit/ Hyperactivity Disorders (AD/HD)

There is much discussion about whether attention-deficit/hyperactivity disorder (AD/HD) fits into the category of learning disabilities. At present, most research suggests that AD/HD and learning disabilities constitute separate disorders (Moghadam, 1994; Rief, 1993). The American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) (Fourth Edition, 1994) does not classify AD/HD and learning disabilities under the same category. Regardless, most experts agree that at least one-third of the students classified as AD/HD have learning disabilities as well.

There has been much speculation about the possible causes of AD/HD. Current research suggests that AD/HD may be caused by abnormalities in neurotransmitters, which are chemical messengers in the frontal regions of the brain. In addition, AD/HD appears to run in families. Although not all cases of AD/HD can be explained by heredity, there is a strong indication that genetics can be a factor in this disorder.

The DSM-IV offers guidelines which are used by professionals as part of the diagnostic process for AD/HD. These guidelines are not intended to be used in isolation to diagnose AD/HD but to provide a common language and set of standards. Although the term "attention deficit disorder" is used frequently, the DSM-IV uses the term "attention-deficit/hyperactivity disorder" as the label for this disorder and specifies the following subtypes:¹⁰⁵

Subtypes

- attention-deficit/hyperactivity disorder, combined type: the most common form of the disorder in which six (or more) symptoms of inattention and six (or more) symptoms of hyperactivity-impulsivity have persisted for at least six months
- attention-deficit/hyperactivity disorder, predominantly inattentive type: (This category has been commonly understood as attention deficit without hyperactivity, or ADD.) This subtype exhibits six (or more) symptoms of inattention (but fewer than six symptoms of hyperactivity-impulsivity) which have persisted for at least six months

¹⁰⁵ From the *Diagnostic and statistical manual of mental disorders*, Fourth Edition. Copyright 1994. American Psychiatric Association. Reprinted with permission.

- attention-deficit/hyperactivity disorder, predominantly hyperactive-impulsive type: this subtype exhibits six (or more) symptoms of hyperactivity-impulsivity (but fewer than six symptoms of inattention) which have persisted for at least six months.

The DSM-IV diagnostic criteria are presented below. Professionals use these guidelines as part of the diagnostic process. Criteria A through E must all be met. How an individual meets criteria A1 and/or A2 determines the subtype of AD/HD.

A. Either 1 or 2.

1. Six (or more) of the following symptoms of inattention have persisted for at least six months to a degree that it is maladaptive and inconsistent with developmental level:

Inattention:

- (a) often fails to give close attention to details or makes careless mistakes in schoolwork, work or other activities
- (b) often has difficulty sustaining attention in tasks or play activities
- (c) often does not seem to listen when spoken to directly
- (d) often does not follow through on instructions and fails to finish schoolwork, chores or duties in the work place (not due to oppositional behaviour or failure to understand instructions)
- (e) often has difficulty organizing task and activities
- (f) often avoids, dislikes or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
- (g) often loses things necessary for tasks or activities; e.g., toys, school assignments, pencils, books or tools
- (h) is often easily distracted by extraneous stimuli
- (i) is often forgetful in daily activities.

2. Six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity:

- (a) often fidgets with hands or feet or squirms in seat
- (b) often leaves seat in classroom or in other situations where remaining seated is expected
- (c) often runs or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)

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- (d) often has difficulty playing or engaging in leisure activities quietly
- (e) is often "on the go" or often acts as if "driven by a motor"
- (f) often talks excessively.

Impulsivity:

- (g) often blurts out answers before questions have been completed
- (h) often has difficulty awaiting turn
- (i) often interrupts or intrudes on others; e.g., butts into conversations or games.

- B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age seven.
- C. Some impairment from the symptoms is present in two more settings; e.g., at school (or work) and at home.
- D. There must be clear evidence of clinically significant impairment in social, academic or occupational functioning.
- E. The symptoms do not occur exclusively during the course of any other psychotic or mental disorder.

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The most effective treatment for AD/HD is multimodal, that is a combination of components, such as medication, behaviour management (home and school), educational modifications and classroom accommodations. There are a number of medications that are effective in the treatment of AD/HD. Parents should ask the consulting physician for specific information regarding the use, dosages and side effects of these medications. See Appendix 26, page LD.271, for more information on commonly used medications.

If medication is prescribed, most physicians will suggest a trial period in order to find out which medication is most appropriate and at what dosage level. It is important that physicians involve school personnel and parents by requesting that daily or weekly checklists be filled out to monitor the student's behaviour. Teamwork and communication between home, school and the physician or the diagnostic team is highly recommended.

It must be understood that medication is not a cure, but only part of a "multimodal interdisciplinary management approach" (Fowler, 1992, p. 3) in which the following components are recommended:

- knowledge of the disorder and how it affects the student across environments

Accommodations and Strategies

- training for parents involving behaviour management
- educational and behavioural programming to meet individual needs
- treatment with medication when deemed necessary by parents and a physician
- family and individual counselling and support when needed.

AD/HD students are often misunderstood and have judgments and expectations placed on them that they cannot consistently meet. Consequently, high levels of frustration and low levels of self-esteem are often evident. These students are often inconsistent in their performance and behaviour and have difficulty governing their behaviour within rules and structure. Appendix 25, page LD.269, offers a checklist for screening students who may have problems with attention. Appendix 26, page LD.270, provides accommodations teachers can make to adapt to the needs of students with AD/HD. Other resources which include accommodations and strategies are listed on pages LD.292–293.

Teachers must remember and understand that these students have extreme difficulty curbing their impulses. They often know the difference between what is appropriate and inappropriate, what is off task and what is on task; they simply can't consistently follow through. Students with AD/HD need to understand the disorder and know the types of self-monitoring and learning strategies that are effective for them. Many students also require accommodations regarding reasonable expectations for time on task and the amount of material to be completed. Some general suggestions follow.

- Match academic tasks to students' abilities. Many AD/HD students have particular difficulty with written language tasks due to fine motor weaknesses, visual perception problems and/or the lack of attention and persistence demanded in written tasks. The rule of thumb is to begin with the known to the unknown, the simple to the complex and to increase difficulty levels very slowly (Taylor, 1992, p. 298).
- Try to keep academic assignments brief, recognizing that these students' attention spans are generally short. Break long tasks down into shorter, easier to manage steps. Give feedback about the accuracy of assignments as soon as possible. Set short time limits for task completion. A timer (egg timer, stop watch, etc.) may be helpful in motivating students to complete the task at hand. Be careful, however, some students may find the timer more stimulating than the task.
- Vary the presentation format and task materials, for example, through the use of different modalities — visual, auditory, kinesthetic.

- Increase the novelty and interest of a task through the use of increased stimulation; e.g., texture, shape, colour, mystery, etc.
- Intersperse low-interest, repetitive or passive tasks with high-interest or active tasks to optimize performance.
- Give tasks that require active participation —hands-on tasks instead of those requiring passive responses are generally better for the student with AD/HD. Well-structured group situations can be motivating. Be careful however, because transition times, such as moving from one activity to another, which normally involve noise and movement may throw some students off task. If teachers notice this is too much stimulation for a student, send him or her to the office on an errand until the transition is complete and the groups are on task.
- Whenever possible, turn tasks into activities or games. For example, with older students, turn the review of material for a test into a "Jeopardy" game-show activity. This has been found to reduce activity level, enhance attention and improve overall performance.
- Watch for signs of restlessness and/or distress in students with AD/HD. You may want to send the student on an errand or for a drink — something active, to diminish fatigue or restlessness.
- Carefully consider the decision to keep these students in regularly at recess, breaks or during physical education classes to make up work they haven't completed. They need time to run off excess energy and restlessness. If, however, you notice that a certain student has a lot of difficulty with stimulation and the crowding of students exiting for a break, it may be in the student's best interest to delay the exit for a minute or two.
- Try to set up a private code between you and the student that signals if he or she needs extra help or has forgotten a direction. A simple unobtrusive touch can remind the student to get back to task without singling him or her out. In upper grades, consider using coloured cards (one or two per subject time block) that a student can raise to indicate that assistance is needed from a teacher or a peer helper (Taylor, 1992, p. 293).
- In oral discussions, make sure that this student is often one of the first people you call on for input if he or she is willing to volunteer an answer. These students have great difficulty waiting their turn. Offer some strategies to help the student

wait until called on without forgetting what he or she has to say, such as writing down the answer, or using fingers to recall the points to be made; e.g., touching the thumb for point one, etc.

- Routine and structure are important for the student with AD/HD. If there is going to be a change in classroom routine on any given day, for example, a guest speaker, do not spring this on the student. Preview the day so that the student is aware of any changes and can prepare for them. You may want to review the types of expectations for behaviour when there is a presentation or a guest speaker. Large gatherings and performances are difficult for these students.
- Try having two desks at different places in the classroom for students with AD/HD. If the student has been working in one place for a while, suggest working on the new activity at the other desk. In older grades, the student could complete a certain amount of work before moving to a "challenge centre" to work on a project or to the library to do research.
- Having a homework or assignment basket or tray to collect assignments throughout the day may be helpful.
- If possible, set up an "office" area using a study carrel or a cardboard election booth to provide students with a quiet place for uninterrupted work time. It is sometimes helpful to provide a walkman that plays soothing background music to help screen out other distractions. This office area should only be used for specific tasks or at specific times, with the student spending the majority of the time integrated with the regular class.
- Behaviour programs that provide reinforcement for appropriate behaviour combined with negative consequence for undesired behaviour have been found to be effective in improving specific skills and behaviours. When using a behaviour program, target one behaviour at a time to help the student understand the expectations. Vary the reinforcement in order to keep the program novel and interesting. Make feedback immediate and specific to the task. Initially, pair praise and social feedback with concrete rewards; e.g., stickers, special treats. To assist students in learning self-control, emphasize that they have a choice to display either the inappropriate or desired behaviour. The behaviour they choose will have direct control over the consequence they receive. Consequence-based behaviour programs are most effective for the behaviours targeted and in the situation in which the consequences are received.

- Facilitating and teaching study and organizational skills are imperative for students with AD/HD. Homework books and daytimers are valuable tools for keeping track of assignments. Parents can help elementary students get into the routine of using them by monitoring or signing homework books. Parents can also help their children develop a homework routine and schedule. It is often helpful to break long-term assignments or projects into smaller components with shorter deadlines.
- Cognitive behaviour therapy may be effective for some AD/HD students. See page LD.227 for more on cognitive behaviour therapy.

Teachers of students with AD/HD face the challenge of incorporating more activity and novelty into their methods and materials. The following principles for remediation, based on Dr. Zentall's work, are recommendations which she submitted to the Council for Exceptional Children Task Force on ADD.¹⁰⁶ They apply to students of all ages.

Principles for Remediation for Students with Attention-deficit/Hyperactivity Disorders

Excessive Activity

- Do not attempt to reduce activity, but channel it into acceptable avenues.
 - Encourage directed but non-disruptive movement in classrooms.
 - Allow standing during seat work, especially at the end of task.
- Use activity as a reward.
 - Provide activity rewards for improvement; e.g., running errands, cleaning blackboards, organizing the teacher's desk, arranging chairs.
- Use active responses in instruction.
 - Use teaching activities that encourage active responding; e.g., talking, moving, organizing, working at the board.
 - Encourage diary writing, painting, etc.
 - Teach students to ask on-topic questions.

Inability to Wait (Impulsivity)

- Give students substitute verbal or motor responses to make while waiting and, where possible, encourage planning in the interim.
 - Instruct students to continue with easier parts of tasks (or do a substitute task) while waiting for help.

¹⁰⁶ From *Educator's manual: attention deficit disorder: an in-depth look from an educational perspective*, by Mary Fowler. Adapted and reprinted with permission.

- Have students underline, highlight or rewrite directions before beginning.
- Encourage on-task drawing, for example, draw a picture outline of what is being said while listening to instructions.
- Encourage note-taking (even just cue words).
- Actively focus on and reward short intervals of waiting and gradually increase the length of the waiting period.
- Where the inability to wait results in impatience and bossiness, encourage leadership but do not assume that impulsive statements or behaviour are aggressive in intent.
 - Suggest/reinforce alternate ways to participate; e.g., line reader, paper passer.
 - Cue students about upcoming difficult times or tasks where extra control will be needed.
 - Teach students who interrupt to recognize pauses in conversations and how to remember ideas. Have students practise these social skills through role playing.
 - Instruct and reinforce social routines: hello, good-bye, please, thanks.

Failure to Sustain Attention to Routine Tasks and Activities

- Decrease the length of the task:
 - Break one task into smaller parts to be completed at different times.
 - Give two tasks, with the preferred task to be completed after the less-preferred task.
 - Give fewer spelling words, mathematics problems.
 - Use fewer words explaining tasks (concise and global verbal directions).
 - For rote tasks, distribute practice over several short sessions rather than a single long mass practice.
- Make tasks interesting:
 - Allow work with partners, in small groups, in centres.
 - Alternate high- and low-interest tasks.
 - Use an overhead projector when lecturing.
 - Allow the student to sit closer to the teacher.
- Increase novelty, especially during longer tasks.
 - Make a game out of checking work.
 - Use games to over-learn rote material.

Entire page from *Educator's manual: attention deficit disorder: an in-depth look from an educational perspective*, by Mary Fowler. Adapted and reprinted with permission.

Noncompliance and Failure to Complete Tasks

- Generally increase choices and specific interest of tasks for students:
 - Allow students a limited choice of tasks, topics, activities.
 - Determine students' preferred activities and use them as incentives.
 - Bring students' interests into assignments.
- Make sure tasks fit within students' learning abilities and preferred response style. See page LD.74 for an instructional and accommodations checklist.
 - Allow alternate response modes; e.g., typewriter, computer, taped assignments.
 - Alter the difficulty level of assignments.
 - Make sure disorganization is not a reason for failure to complete tasks.

Difficulty at the Beginning of Tasks

- Provide explicit structure and cues to emphasize relevant information:
 - Prompt students with verbal directions; e.g., use written directions in addition to verbal ones, encourage note-taking.
 - Structure written assignments and tests; e.g., use graph paper for mathematics, state standards of acceptable work, being as specific as possible.
 - Point out the overall structure of tasks; e.g., topic sentences, headings, tables of content.
 - Allow work with partners or in small groups with quiet talking.
 - Colour, circle, underline or rewrite directions, difficult letters in spelling, mathematics process signs.
 - Attempt to provide students with choices to undertake leadership roles by assisting the teacher, reading school information, monitoring, being a captain in gym, etc.

Difficulty Completing Assignments on Time

- Increase the use of lists and assignment organizers (notebooks, folders):
 - Write assignments for students in pocket notebooks.
 - Write assignments on the board. Make sure students copy them.
- Establish object-placement routines to retrieve routinely used objects such as books, assignments and clothes:

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- Encourage routines of pocket folders with new work on one side and graded work and class notes organized chronologically on the other.
- Encourage parents to establish places for certain things at home; e.g., books, homework.
- Organize desks or lockers with labels and places for certain items.
- Use colour and spatial organizers
 - Before leaving one place for another, teach the routine of self-questioning: "Do I have everything I need?"
 - Tape prompt cards on desk, on books or on assignment folders.

Difficulty Planning and Organizing Thoughts

- Practise planning:
 - Practise planning different activities; e.g., what is needed, how to break tasks into parts.
 - Practise estimating the time needed for activities.
 - Teach outlining skills.
- Practise sorting, ordering and reordering:
 - Teach the use of a word processor to reorder ideas.
 - Teach students to take notes on lectures or on written materials in three columns (main points, supporting points, questions).
 - Model planning, organization and problem-solving skills.

Poor Handwriting

- Reduce the need for handwriting:
 - Do not have students recopy material. It will get progressively worse instead of better.
 - Allow students to have a copy of a peer's notes or the teacher's notes.
 - Accept typed or taped assignments.
- Reduce standards on some assignments and make relevant standards clearer on important assignments:
 - Colour, circle or underline parts of letters that students typically fail to close in cursive writing.
 - Allow reduced standards for acceptable handwriting.
 - Display particularly good samples of students' work.

Low Self-esteem

- Generally recognize students' strengths and efforts:

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- Call attention to areas of students' strengths by allowing for a consistent time each day or week during which students can display their talents.
 - Recognize that excessive activity can also mean increased energy and productivity.
 - Recognize that attraction to novel stimulation can also lead to creativity.
- Increase students' feelings of success by increasing students' skills:
 - Recognize these students' playfulness and use it to develop skills.
 - Mark students' correct performance, not the mistakes.

The above is taken from *Educator's manual: attention deficit disorder: an in-depth look from an educational perspective*, by Mary Fowler. Reprinted with permission.

Difficulty Listening to and Following Directions¹⁰⁷

- Don't give directions until the class is completely quiet.
- Wait until you have everyone's attention. You may need to walk over and touch or physically cue students for their focus.
- Explain clearly, slowly and concisely.
- Face students when you talk.
- Use multisensory instructions. Provide visual and verbal instructions. For example, write on the overhead or chalkboard a few key words, phrases, page numbers, picture cues.
- Model what to do. Show the class.
- Don't overwhelm students with too many instructions at one time.
- If the assignment is due the next day or later in the week, have students record it on the assignment calendar. Help walk them through the correct recording and leave the assignment written on the blackboard or other visible place until the end of the day as a reminder.
- Check for understanding with the whole class by asking for specifics. For example,

Teacher: Will we do problems 8 and 12?
 Class: No.
 Teacher: Why not?
 Class: We are supposed to do only the odd numbers.
- Have individual students repeat or rephrase directions to check for understanding.
- Give complete directions, including what you expect them to do once the task is finished.
- Actively teach and role play good listening behaviour: eyes looking, body still, think along. See Appendix 16, page LD.256, for "Give me five," a cueing system for listening.

¹⁰⁷ From *How to reach and teach ADD/ADHD children*, by S. F. Rief. Adapted and reprinted with permission.

Cognitive Behaviour Therapy

Cognitive behaviour therapy or "Stop and Think" is a technique to help students problem solve more effectively, or stop and think before they act. It is particularly useful for students who are impulsive or lack self-control strategies. Students are taught to slow down and work through problems methodically rather than impulsively approaching tasks. In order to best understand the strategy, students should be taught to first utilize this technique when completing academically based tasks and then in dealing with interpersonal and social situations.

The steps of Stop and Think include teaching students to:

- define and recognize the problem (clearly understand the exact difficulty or requirements of the task)
 - set goals (determine how students want things to end up)
 - think of all the possible solutions to reach this goal and possible consequences of each of those solutions
 - focus, concentrate and choose the best or most workable solution and evaluate the performance.
- Students can be taught to use Stop and Think through self-instructional training, modelling, cues and a reinforcement system.
 - Self-instructional training includes having students verbalize each of the steps of Stop and Think to become cognitively aware of considering and dealing with problems. Saying each step will in itself slow students down. Students should be encouraged to say:

Let's see, what is the problem here? What do I have to do? I have to set a goal. How do I want things to end up? Now I have to think of all of the possible ways to reach that goal and think of the consequences of each of my possible solutions. I had better focus and concentrate now and choose the best solution. Did this solution help me reach my goal and are the consequences good? Yes? Great, I focused and figured it out, (or) No, that solution did not work. I had better try again. How do I know I've finished?

Eventually, students should be encouraged to fade out the verbalizations and silently go through each step. The final step, evaluating, is particularly important in helping students recognize when tasks are completed correctly and realize that when mistakes are made, they simply need correcting.

Cognitive behaviour therapy is most effective when students are provided with reinforcement for using the strategy. Reinforcement appears necessary for most students, both to learn, as well as to continue using the strategy. Cognitive behaviour therapy is

Beliefs about AD/HD

usually only effective in the situation in which the training was undertaken. If the student has learned and is using the strategy effectively within one setting, it may be worthwhile teaching and reinforcing its use in other settings.

Parents'/Teachers' Beliefs¹⁰⁸

Students with AD/HD can be a challenge at home and at school. Disruptive behaviours can interfere with the smooth running of the classroom and with peace in the home. There is a possibility that the adults involved with a student with AD/HD will become frustrated in their roles as parents or teachers. Beliefs and expectations about a student have a powerful influence on behaviour toward that student and consequently on the student's behaviour.

Be a Positive Influence

- ☺ Identify 10 things that you like about the student.
- ☺ Identify and label a strength.
- ☺ Identify and label specific positive behaviours.
- ☺ Channel his or her energy.
- ☺ Emphasize positive interactions.
- ☺ Set the stage for success.
- ☺ Believe in the student.
- ☺ Believe in yourself.

Students' Beliefs¹⁰⁸

Students must learn to accept that having AD/HD can make things more difficult both academically and socially, rather than believing that they are bad or stupid. Rather than lowering expectations of themselves, students must adjust them in certain aspects of their lives. For example, they might not do well at detailed work, but may be flexible thinkers who excel in areas requiring creativity.

Families can help such children believe they have the ability to overcome their specific difficulties so that they can see themselves as capable rather than as failures. Students with AD/HD need to build on weaknesses gradually, while at the same time maintaining a positive sense of their strengths.

Self-esteem is measured by how well people like, appreciate and accept themselves as well as the self-value and worth they place on themselves. Many students with AD/HD have poor self-esteem. They often don't like themselves, because the view of themselves that they get from parents, teachers, siblings and classmates is not very likable.

¹⁰⁸ From *ABC's for success: attention deficit disorder*, by D. Souveny & D. Souveny. Adapted and reprinted with permission.

Students with AD/HD need to believe that they can receive attention in positive ways rather than through misbehaving and negative means. A misbehaving student is usually a discouraged student. Parents and teachers can help these students feel they belong and alleviate their motivations for misbehaviour.

Help students focus on the positives of having AD/HD. The following list was generated about students with AD/HD. Have students select their favourites and add their own ideas.

25 Good Things About Having ADD¹⁰⁹

1. Lots of energy.
2. Willing to try things, take risks.
3. Ready to talk. Can talk a lot.
4. Get along well with adults.
5. Can do several things at one time.
6. Smart.
7. Need less sleep.
8. Good sense of humour.
9. Very good at taking care of younger kids.
10. Spontaneous.
11. See details that other people miss.
12. Understand what it's like to be teased or to be in trouble so are understanding of other kids.
13. Can think of different and new ways to do things.
14. Volunteer to help others.
15. Happy and enthusiastic.
16. Imaginative, creative.
17. Articulate. Can say things well.
18. Sensitive, compassionate.
19. Eager to make new friends.
20. Great memory.
21. Courageous.
22. More fun to be with than most kids.
23. Charming.
24. Warm and loving.
25. Care a lot about families.

¹⁰⁹ From a list compiled by staff and parents at Calgary Learning Centre Summer Camp. Reprinted with permission.

Students with Fetal Alcohol Syndrome (FAS) and Possible Prenatal Alcohol-related Effects

According to Burgess & Streissguth,¹¹⁰ fetal alcohol syndrome (FAS) is a medical condition characterized by physical and behavioural disabilities resulting from heavy exposure to alcohol before birth. The term "fetal alcohol effects" (FAE) has been used to indicate that an individual has some, but not all of the characteristic features of FAS. Currently, researchers discourage the use of the term fetal alcohol effects because of the confusion and clinical problems it creates (Stratton, Howe & Battaglia, 1996). Throughout this resource, the term "possible prenatal alcohol-related effects" will be used instead. Fetal alcohol effects (FAE) will only be used when directly citing research findings from the literature.

Statistics quoted by Burgess & Streissguth¹¹¹ indicate that, in the United States, 1 child in every 500–600 births has FAS.

Canadian estimates of FAS from Health and Welfare Canada are one or two per 1000 live births.

FAS accounts for eight to 10 per cent of all cognitive delays. It is now the leading known cause of cognitive delays and is completely preventable.

Precise medical diagnosis is of the utmost importance for the overall support of students with fetal alcohol syndrome. If undiagnosed, the learning problems experienced by these students may not be recognized as being FAS related and may result in inappropriate placement and educational planning.

Kleinfeld & Westcott (1993, p. 24) indicate that the average IQ of children with FAS is 70, although a broad range from less than 50 to greater than 115 has been reported. Burgess & Streissguth¹¹² indicate that even though there is a wide distribution of IQ scores, the most debilitating deficits occur in functional skills; i.e., adaptive living skills.

Diagnostic Criteria and Physical Characteristics of Students with FAS¹¹³

- history of maternal drinking
- low birth weight and/or small size
- central nervous system dysfunction, small head circumference
- characteristic pattern of facial features and other physical abnormalities
- other abnormalities can include congenital eye defects, dental abnormalities, joint anomalies, altered creases on the palms of hands and heart defects.

^{110, 111, 112, 113} From "Fetal alcohol syndrome and fetal alcohol effects: principles for educators," by D. M. Burgess & A. P. Streissguth. Adapted and reprinted with permission.

Behavioural and Learning Characteristics of Students with FAS and Possible Prenatal Alcohol-related Effects

These students may exhibit some, but not necessarily all of the following characteristics:

- **Adaptive Behaviour Concerns**

Students may:

- have difficulty with social skills, have a hard time keeping friends
- have difficulty perceiving social cues; e.g., may not understand personal boundaries, invade other's body space, touch others inappropriately
- have poor judgment
- have difficulty understanding cause and effect
- have difficulty learning from consequences (need extensive repetition)
- blame others, are egocentric
- not understand that rules apply to them
- be easily influenced or manipulated by others
- often tell you what they think you want to hear
- have problems adapting to transitions and changes in environment
- be stubborn
- have difficulty making choices
- over or under-react to situations
- have mood swings
- be overly friendly and affectionate.

Many of the following characteristics are observed among students with FAS and possible prenatal alcohol-related effects. The characteristics are symptoms of an underlying attention disorder.

- **Attention and Activity Level**

Students may:

- be extremely active, restless or fidgety
- be easily distracted
- have a short attention span
- be impulsive.

- **Learning Difficulties**

Students may:

- have difficulty in reading, written language and mathematics
- have difficulty with abstract concepts
- have difficulty generalizing information from one situation to another
- have good long-term memories for past events
- have weak short-term memories, can't remember what happened this morning

- forget concepts from one day to the next
- forget established daily routines
- have difficulty retrieving information
- have immature speech/language
- have poor communication (chatty but lack substance)
- have difficulty following oral instructions
- be slow to process language.

General Strategies for FAS and Possible Prenatal Alcohol-related Effects

- Provide as much early intervention as possible.
- Provide a great deal of hands-on experience.
- Provide ongoing opportunities for the rehearsal and practice of previously learned skills, information and strategies.
- Help develop communication skills. These students may initially impress you as being very verbal. If you listen carefully, however, they may not be communicating effectively. There may be little meaningful content relevant to the discussion at hand. To improve communication skills, provide assistance in learning both nonverbal expressions and verbal communication skills.
- Teach and model social skills. Students with FAS and possible prenatal alcohol-related effects often have a difficult time making friends and being accepted. It is imperative to include social skills learning throughout their schooling. Realize however, that these students may not as readily transfer role plays to actual situations as well as their classmates. You will need to help students practise their skills within the context of their environment, such as how to ask to join in on the playground, sharing lunch in the lunchroom or how to participate appropriately in the reading corner.
- Teach skills for daily living.
- Celebrate and appreciate even the smallest gains.
- Tanner's¹¹⁴ strategies include:
 - Help students to see the value of failure.
 - Encourage students to develop a success orientation.
 - Encourage the use of positive self-talk.
 - Encourage students to get ready for school before going to bed.
 - Use a picture dictionary.
 - Stress what is theirs. "This is your desk, chair, pencil."
 - Redirect behaviour when they tattle.
 - Acknowledge when students feel angry and then go on.
 - Ensure education is culturally relevant.
 - Emphasize readiness skills — increasing attention span, compliance, sitting in seat, listening (preschool curriculum).
 - Maximize the use of sensory stimulation.
 - Try to catch them being good, doing things right. Note it.

¹¹⁴ From P. Tanner. Adapted and reprinted with permission.

Specific Strategies for FAS and Possible Prenatal Alcohol-related Effects

The key to working successfully with students with FAS and possible prenatal alcohol-related effects is to apply structure, consistency, brevity, variety and persistence.

The educational suggestions and techniques developed by the University of South Dakota affiliated program, found in Appendix 27, pages LD.272–284 are intended for preschool, elementary and junior and senior high school students. They are taken from *Fantastic Antone Succeeds! Experiences in Educating Children with Fetal Alcohol Syndrome* and are reprinted with the authors' permission. The authors have repeated some information from list to list in order to make these suitable as handouts for parents and educators at specific grade levels.

Tanner recommends the following strategies:¹¹⁵

Environmental

- Use well-defined areas.
- Remove extraneous material.
- Use preferential seating.
- Use the same staff consistently.
- Use pictorial cues as reminders of class routines.
- Adapt tasks and materials in terms of frustration tolerance.
- Pair the student with FAS/FAE with high-tolerance students for short periods.

Transitional Periods

- Use an egg timer for clearly defining the ending of activities.
- Use puppets.
- Use songs or music/rhythm cues.
- Use visual cues.
- Alert students in advance of activity changes.

Teaching Organizational Skills

- Assign short tasks with clear terminal objectives. Give explicit, limited, concrete, brief, carefully defined directions.
- Consistently follow-up on assignments.
- Use calendars, notebooks, note cards, assignment books.
- Provide adequate time between activities for students to organize material. Give extra time to complete tasks.
- Give direct instruction in thinking skills.
- Put the students' important papers on giant paper clips.
- Limit the type and number of new situations encountered at one time.

¹¹⁵ From P. Tanner. Adapted and reprinted with permission.

- Make lists with visual cues. Provide lists of homework, readings, rules for older students.
- Sort/differentiate the important from the less-significant details. Have matching and sorting activities, and games.
- Model alternative behaviours and strategies.
- Make "my choice" cards for students.
- Have peers model behaviour and strategies.
- Provide positive incentives for finishing.
- Provide a schedule for daily activities.
- Teach a unit on organizational skills.
- Recognize students for partially correct responses.
- Teach analyzing and synthesizing skills.

Increasing Attention

- Use red or pink highlighters not yellow.
- Spend time describing and comparing objects, events, details.
- Use a tape recorder and/or ear phones.
- Use eye contact, touch, or call the student's name before giving directions.
- Give additional anticipatory explanations.
- Have students repeat directions. Avoid group directions.
- Make sure you are testing knowledge, not attention span.
- Use novelty as an attention getter.
- Provide lesson outlines to increase listening comprehension.
- Focus attention with pictures, objects, facial expressions. The visual channel is usually primary.
- Control classroom interruptions.
- Reduce the tempo of speech, then speed it up.
- Use incomplete sentences, nursery rhymes with key words omitted so students must pay attention to participate.
- Use focus words. ("Do it NOW.")
- Vary loudness, inflection and quality of voice.
- Use a study carrel if needed.
- Gradually increase the period of time for sustained attention.
- Have students complete the first several items on an assignment and then check to make sure they understand the task.
- Present topics to hook curiosity.

Controlling Impulsivity

- Allow students to doodle.
- Promote turn taking. Use playing cards or tangible objects.
- Model and rehearse social skills.
- Have students reflect upon situations before acting.

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Dealing with Hyperactivity

- Anticipate — know danger signs and situations. Build relaxation into the program. Try using soft background music to calm.
- Avoid long periods of desk work. Don't keep the student in at recess. Give additional short breaks during the day.
- Consider medication.
- Provide lessons which emphasize manual and physical expression.
- Protect from over-stimulation. Control TV and avoid videogames.
- Teach students to self-monitor.
- Help the student regain control if necessary.
- Reduce and control the complexity of assigned tasks.
- Have a respite plan in place for when students are overwhelmed.
- Avoid asking why questions; use how, who, what, where.

Discipline

- Have firm rules, consistently adhered to and clearly understood consequences.
- Avoid sarcasm, nagging, coercion; use a positive approach.
- Be firm but supportive.
- Insist students finish assigned tasks before lunch, etc.
- Don't debate or argue about rules or infractions. Be neutral.
- Ignore negative behaviour when possible. Redirect behaviour.
- Have pre-established consequences for misbehaviour.
- If students are discouraged over repeating mistakes, stress they are just getting another chance.
- View negative behaviour as a symptom of unmet needs.
- Give attention to students who are behaving appropriately.
- Guide towards solutions — get out of the problem.
- Use encouragement rather than praise.
- Take a reinforcer survey to determine favourite things.

Memory

- Repeat and restructure continually.
- Chunk work.
- Use short sentences.
- Teach memory strategies that will help in basic living skills, such as when to eat, sleep, take medication.

Reading

- Use a sight-word approach and predictable reading formats.
- Stress inferential reading. Prepare for reading through a series of questions students are to think about while they read.
- For directionality, use one colour dot at left and another colour at right. Use arrows showing direction.
- Choose material with illustrations that are simple.
- Put a plain piece of paper under the lines.
- Tape record stories so students can listen and read along.
- Have students verbally paraphrase the material just read.
- Make a picture dictionary for difficult words.

Mathematics

- Use a calculator or number line. Memory problems may cause difficulty with multiplication.
- Spend extra time on decimal points in mathematics, spelling, etc. because of inattention to detail.
- Work on the concept of the number, not rote counting.
- Use manipulatives when teaching mathematics.
- Spend extra time on money concepts and making change.
- Provide practice of addition, subtraction facts with computers that give immediate feedback to students.
- Find opportunities for students to apply mathematics to real life.
- Use mathematics and computer games which are motivating and fun.

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Section ⑤

Appendices

Student Support Team Request for Assistance¹¹⁶

Student's Name:

Date:

Age:

Grade/Level:

Referring Teacher:

Resource Teacher:

Major reason for referral:**Describe your goals for this student:****Describe this student's strengths:****Strategies attempted to date:****Additional student data:**

¹¹⁶ From Gail and Garry Clark. Adapted and reprinted with permission. For further details please contact Clark & Associates, Saskatoon, SK. Telephone: (306) 343-0365 or (306) 343-7502. Fax: (306) 343-0356.

Student Support Team Problem-solving Worksheet¹¹⁷

Student's Name:

Date:

Age:

Grade/Level:

Referring Teacher:

School:

Situation (as defined by consensus):**Details:****Suggested interventions (brainstorming):**

¹¹⁷ From Gail and Garry Clark. Adapted and reprinted with permission. For further details please contact Clark & Associates. Saskatoon, SK. Telephone: (306) 343-0365 or (306) 343-7502. Fax: (306) 343-0356.

Student Support Team Problem-solving Worksheet: Action Plan¹¹⁸

Interventions selected (by referring teacher):	Support required:

Criteria for success:

Additional input needed:

Date for Follow-up: _____

¹¹⁸ From Gail and Garry Clark. Adapted and reprinted with permission. For further details please contact Clark & Associates. Saskatoon, SK. Telephone: (306) 343-0365 or (306) 343-7502. Fax: (306) 343-0356.

Student Support Team Meeting Evaluation¹¹⁹

Student's Name:

Date:

Age:

Grade/Level:

Referring Teacher:

School:

	Circle One	
1. The reason for referral was clearly communicated.	Yes	No
2. Information presented was relevant to the situation described.	Yes	No
3. Specific examples were presented.	Yes	No
4. Questioning clarified the reason for referral.	Yes	No
5. Consensus was reached on the situation.	Yes	No
6. Possible solutions were brainstormed freely.	Yes	No
7. Brainstorming ideas were clarified.	Yes	No
8. The referring teacher selected interventions to implement in the classroom.	Yes	No
9. Necessary support for implementation was determined.	Yes	No
10. Criteria for success were defined.	Yes	No
11. Arrangements were made for follow-up.	Yes	No
12. All participants had an equal opportunity.	Yes	No
13. The team stayed on task and within the set meeting time.	Yes	No

Areas for further team development:

¹¹⁹ From Gail and Garry Clark. Adapted and reprinted with permission. For further details please contact Clark & Associates, Saskatoon, SK. Telephone: (306) 343-0365 or (306) 343-7502. Fax: (306) 343-0356.

Individual Rating Scale¹²⁰

[illegible]

¹²⁰ From "A Systematic procedure for prioritizing IEP goals," by Jill C. Dardig and William L. Heward, 1981, *The Directive Teacher*, 3(2), pp. 6, 8. Adapted and reprinted with permission.

Individual Rating Scale¹²⁰

Student's Name: _____ Team Member Name and Position: _____ Date: _____	Key: 1. = No or Never ↑ 2. = Rarely Lowest Priority 3. = Maybe or Sometimes 4. = Usually Highest Priority 5. = Yes or Always ↓								
Criteria for prioritizing									
Fill in Goals (in abbreviated form)	Is skill useful in immediate environment?	Is skill functional?	Would skill be used often?	Has student demonstrated interest?	Is success likely?	Is skill a prerequisite?	Will student become more independent?	Will student quality for additional services?	Totals

¹²⁰ From "A Systematic procedure for prioritizing IEP goals," by Jill C. Dardig and William L. Heward, 1981, *The Directive Teacher*, 3(2), pp. 6, 8. Adapted and reprinted with permission.

Teaching Follow-up¹²¹

Name: _____ School: _____

Lesson/Subject: _____ Date: _____

1. Successes Experienced	2. Problems Encountered
3. Possible Revisions	
4. Critical or Interesting Incidents	
5. I shared this lesson with . . .	

¹²¹ From *Cooperative learning: where heart meets mind* (p. 294), by B. Bennett, C. Rolheiser-Bennett and L. Stevahn, 1991, Toronto, ON: Educational Connections. Adapted and reprinted with permission.

Teaching Follow-up¹²²

Sample Questions

Name: _____ School: _____

Lesson/Subject: _____ Date: _____

1. Successes Experienced • What worked well? • What pleased you? • How did students evidence success?	2. Problems Encountered • What frustrated you? • What was problematic? • Describe any disappointments.
3. Possible Revisions • What changes would you make if you were teaching this lesson again? • What revisions would deal specifically with the problems you encountered?	
4. Critical or Interesting Incidents • What was unexpected? • What intrigued you? • What questions were raised in your mind?	
5. I shared this lesson with . . . Collaborating with others promotes growth in implementing cooperative learning. • Who can you share your successes with? • Who can you problem solve with?	

¹²² From *Cooperative learning: where heart meets mind* (p. 293), by B. Bennett, C. Rolheiser-Bennett and L. Stevahn, 1991, Toronto, ON: Educational Connections. Adapted and reprinted with permission.

Observable Characteristics Indicative of Modality Strength¹²³

The following chart outlines various sensory (modality) strengths and potential behavioural observations. It can be used to highlight matching observations about individual students over time in order to develop a profile of sensory strengths. See Section 3, page LD.94, for learning style strategies.

Learning Style	Visual Learns by seeing, watching demonstrations	Auditory Learns through verbal instructions	Kinesthetic Learns by doing, direct involvement
Reading	Likes description, sometimes stops reading to stare into space and imagine scene, intense concentration	Enjoys dialogue, plays, avoids lengthy description, unaware of illustrations, moves lips or subvocalizes	Prefers stories where action occurs early, fidgets when reading, handles books, not an avid reader
Spelling	Recognizes words by sight, relies on configuration of words	Uses a phonics approach, has auditory word-attack skills	Often is a poor speller, writes words to determine if they "feel" right
Handwriting	Tends to be good, particularly when young, spacing and size are good, appearance is important	Has more difficulty learning in initial stages, tends to write lightly, says strokes when writing	Good initially, deteriorates when space becomes smaller, pushes harder on writing instrument
Memory	Remembers faces, forgets names, writes things down, takes notes	Remembers names, forgets faces, remembers by auditory repetition	Remembers best what was done, not what was seen or talked about
Imagery	Vivid imagination, thinks in pictures, visualizes in detail	Subvocalizes, thinks in sounds, details less important	Imagery not important, images that do occur are accompanied by movement
Distractibility	Generally unaware of sounds, distracted by visual disorder or movement	Easily distracted by sounds	Not attentive to visual, auditory presentation so seems distracted
Problem Solving	Deliberate, plans in advance, organizes thoughts by writing them, lists problems	Talks problems out, tries solutions verbally, subvocally, talks self through problems	Attacks problems physically, impulsive, selects solution involving greatest activity
Response to Inactivity	Stares, doodles, finds something to watch	Hums, talks to self or to others	Fidgets, finds reasons to move, holds up hand
Response to New Situations	Looks around, examines structure	Talks about situations, pros and cons, what to do	Tries things out, touches, feels, manipulates
Emotionality	Somewhat repressed, stares when angry, cries easily, beams when happy, facial expression is a good index of emotion	Shouts with joy or anger, blows up verbally but soon calms down, expresses emotions verbally and through changes in tone, volume, pitch of voice	Jumps for joy, tugs and pulls when happy, stamps, jumps and pounds when angry, stomps off, general body tone is good index of emotion
Communication	Quiet, does not talk at length, becomes impatient when extensive listening is required, may use words clumsily, describes without embellishment, uses words such as <i>see, look</i> , etc.	Enjoys listening but cannot wait to talk, descriptions are long and repetitive, likes hearing self and others talk, uses words such as <i>listen, hear</i> , etc.	Gestures when speaking, does not listen well, stands close when speaking or listening, quickly loses interest in detailed verbal disclosure, uses words such as <i>get, take</i> , etc.
General Appearance	Neat, meticulous, likes order, may chose not to vary appearance	Matching clothes not so important, can explain choices of others	Neat but soon becomes wrinkled through activity
Response to the Arts	Not particularly responsive to music, prefers the visual arts, tends not to voice appreciation of art of any kind, but can be deeply affected by visual displays, focuses on details and parts rather than the work as a whole	Favors music, finds less appeal in visual art but is readily able to discuss it, misses significant detail but appreciates work as a whole, is able to develop verbal association for all art forms, spends more time talking about pieces than looking at them	Responds to music by physical movement, prefers sculpture, touches statues and paintings, at exhibits stops at only those in which he or she can become physically involved, comments little on any art form

¹²³ From *Teaching through modality strengths* (pp. 44, 45), by W. B. Barbe and R. H. Swassing, Columbus, OH: Zaner-Bloser, Inc. Adapted and used with permission of the publisher, Zaner-Bloser, Inc.

Learning Channels Inventory¹²⁴

Place the numbers 1, 2, or 3 in the box after each statement that best indicates your preference.

(PLEASE USE #3 – Often, #2– Sometimes, #1–Seldom)

1. I can remember something best if I say it out loud. ☐
2. I prefer to follow written instructions rather than oral ones. ☐
3. When studying, I like to chew gum, snack and/or play with something. ☐
4. I remember things best when I see them written out. ☐
5. I prefer to learn through simulations, games and/or role playing. ☐
6. I enjoy learning by having someone explain things to me. ☐
7. I learn best from pictures, diagrams and charts. ☐
8. I enjoy working with my hands. ☐
9. I enjoy reading and I read quickly. ☐
10. I prefer listening to news on the radio rather than reading it in the newspaper. ☐
11. I enjoy being near others. (I enjoy hugs, handshakes and touches.) ☐
12. I listen to the radio, tapes and recordings. ☐
13. When asked to spell a word, I simply see the word in my mind's eye. ☐
14. When learning new material, I find myself sketching, drawing and doodling. ☐
15. When I read silently, I say every word to myself. ☐

In order to get an indication of your learning preference, please add the numbers in the boxes together for the following statements.

VISUAL PREFERENCE 2 ☐ 4 ☐ 7 ☐ 9 ☐ 13 ☐ = Total! _____

AUDITORY PREFERENCE 1 ☐ 6 ☐ 10 ☐ 12 ☐ 15 ☐ = Total _____

K/T (Kinesthetic/Tactile) 3 ☐ 5 ☐ 8 ☐ 11 ☐ 14 ☐ = Total _____

The highest score indicates that my learning preference is _____

¹²⁴ From "Learning channels inventory," by Max Coderre (Sherwood Park), *Teaching Today Magazine*, c/o Edmonton, AB: Second Impressions Magazine, 12644 – 126 Street. Adapted and reprinted with permission.

Modalities: Some Applications¹²⁵

One of the ways teachers can begin to accommodate learning differences is by planning lessons/units to accommodate the different ways students learn.

Think about a skill, concept or process you will teach during the coming week and complete the following:

1. a. Identify and record what the intended learning will be.

- b. Write out an objective for your intended learning.

2. a. Briefly explain how you will introduce your lesson.

- b. Go back and look at your introduction. Did you accommodate visual, auditory and kinesthetic learning modalities equally? If not, prepare what you might say or do to adjust your introduction.

3. Brainstorm for activities you will include in your lesson to accommodate a variety of learning modalities.

Visual Activities	Auditory Activities	Kinesthetic Activities

4. Generate alternative ways to evaluate for modality accommodation within your lesson.

Visual Activities	Auditory Activities	Kinesthetic Activities

¹²⁵ From Edmonton Public School District No. 7. Reprinted with permission.

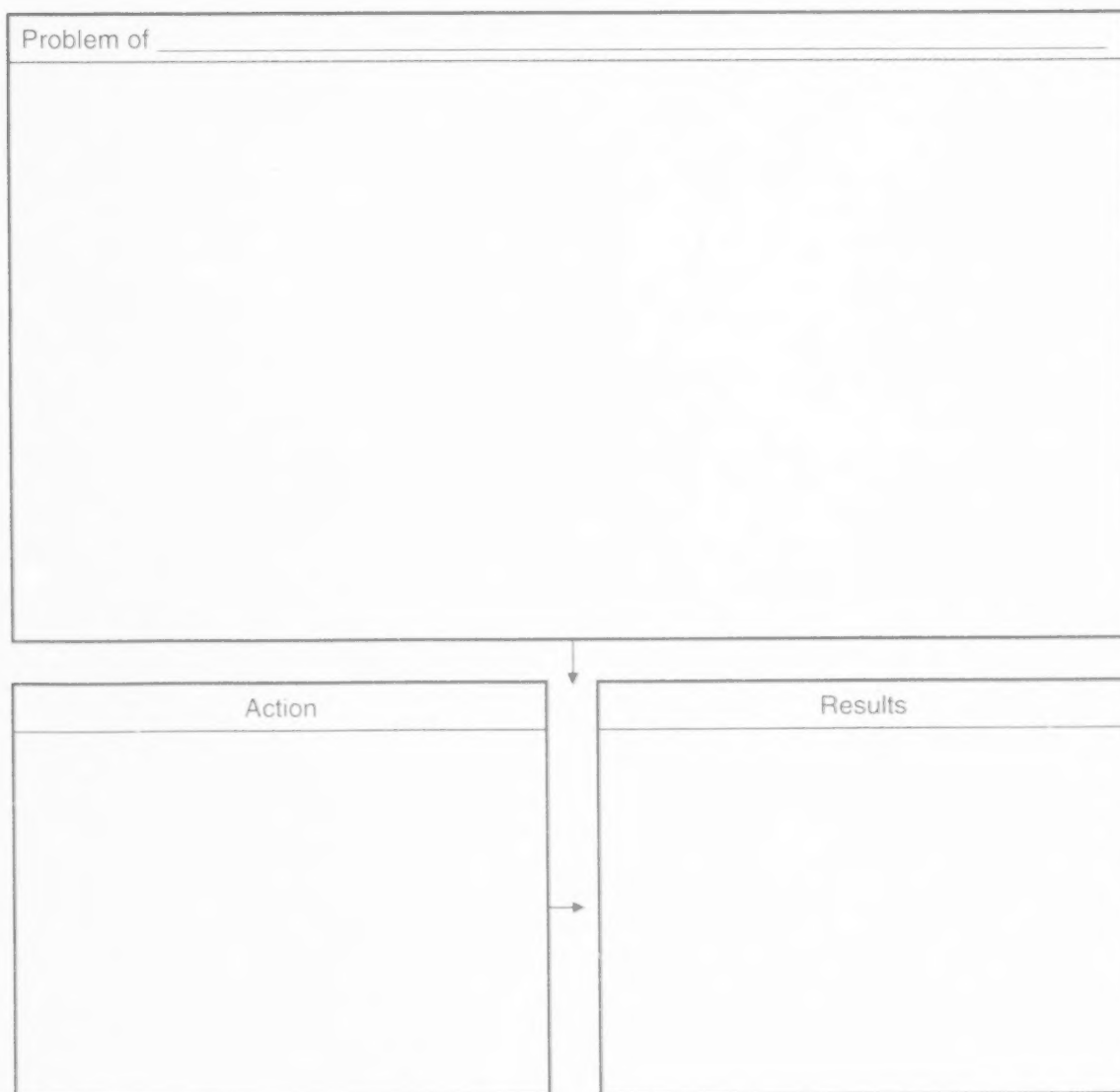
Suggested Aids for Learning Modalities¹²⁶

Use these aids to sharpen a particular dominant learning modality or to strengthen a weaker one. Try to be aware of the different activities you do daily for all three modalities.

Visual	Auditory	Kinesthetic
use guided imagery	use tapes	pace/walk as you study
form pictures in your mind	watch TV	physically "do it"
take notes	listen to music	practise by repeated motion
see parts of words	speak/listen to speakers	breathe slowly
use "cue" words	make up rhymes/poems	role play
use notebooks	read aloud	exercise
use colour codes	talk to yourself	dance
use study cards	repeat things orally	write
use photographic pictures	use rhythmic sounds	write on surfaces with finger
watch TV	have discussions	take notes
watch filmstrips	listen carefully	associate feelings with concept/information
watch movies	use oral directions	write lists repeatedly
use charts, graphs	sound out words	stretch/move in chair
use maps	use theater	watch lips move in front of a mirror
demonstrate	say words in syllables	use mnemonics (word links, rhymes, poems, lyrics)
draw/use drawings	use mnemonics (word links, rhymes, poems, lyrics)	
use exhibits		
watch lips move in front of a mirror		
use mnemonics (acronyms, visual chains, mind maps, acrostics, hook-ups)		

¹²⁶ From *Learning to learn: strengthening study skills and brain power* (p. 26), by Gloria Frender, 1990, Nashville, TN: Incentive Publications. Used by permission. No further reproduction of this page is permitted.

Problem-solution Text Structure: Frame and Definition¹²⁷



Problem = something bad; a situation that people would like to change

Action = what people do to try to solve the problem

Results = what happens as a result of the action; the effect or outcome of trying to solve the problem

¹²⁷ From "Teaching text structure to improve reading and writing," by B. B. Armbruster & T. H. Anderson, 1989, *The Reading Teacher*, 43(2), p. 132. Reprinted by permission of Bonnie B. Armbruster and the International Reading Association. All rights reserved.

Weekly Review Samples¹²⁸



THIS WEEK IN REVIEW:

Month _____

My favourite activities this week were _____

I learned _____

A goal I'm working toward is _____

Next week I'll _____

Student's Signature

COMMENTS:

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Weekly Review Samples¹²⁸



THIS WEEK (and YEAR!) IN REVIEW:

One thing I really learned about myself this year is that _____

This week I _____

I read _____

I wrote _____

Three spelling words I know now that used to be difficult for me are _____

A classmate I admired this week was _____
because _____

Next year in school my goal is to _____

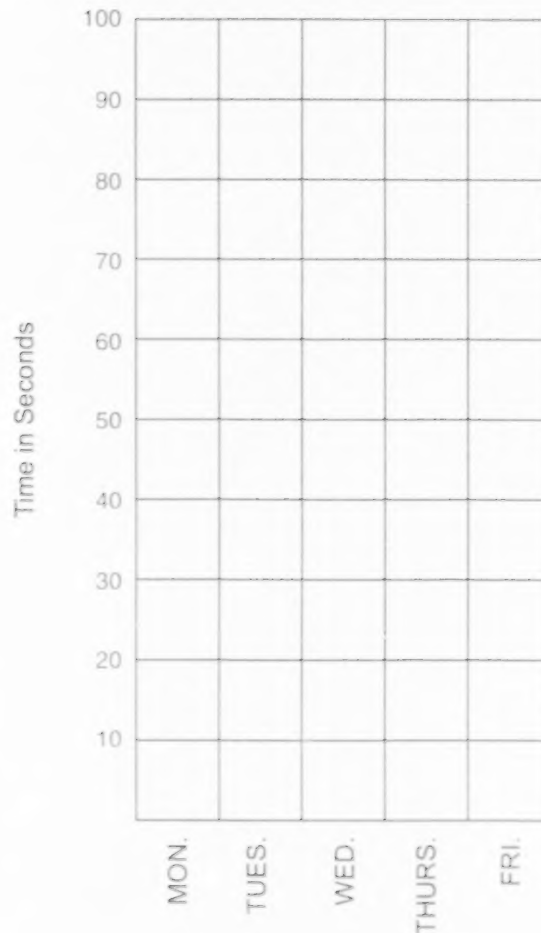
Student's Signature

¹²⁸ From Edmonton Public School District No. 7. Reprinted with permission.

Basic Facts¹²⁹

Date _____

Type of Facts _____

My
Progress
This Week

# Correct	MON.	_____	My Goal This Week (Time) _____
	TUES.	_____	
	WED.	_____	
	THURS.	_____	
	FRI.	_____	

Student's Name _____

284

¹²⁹ From Edmonton Public School District No. 7. Reprinted with permission.

Repeated Reading Record¹³⁰

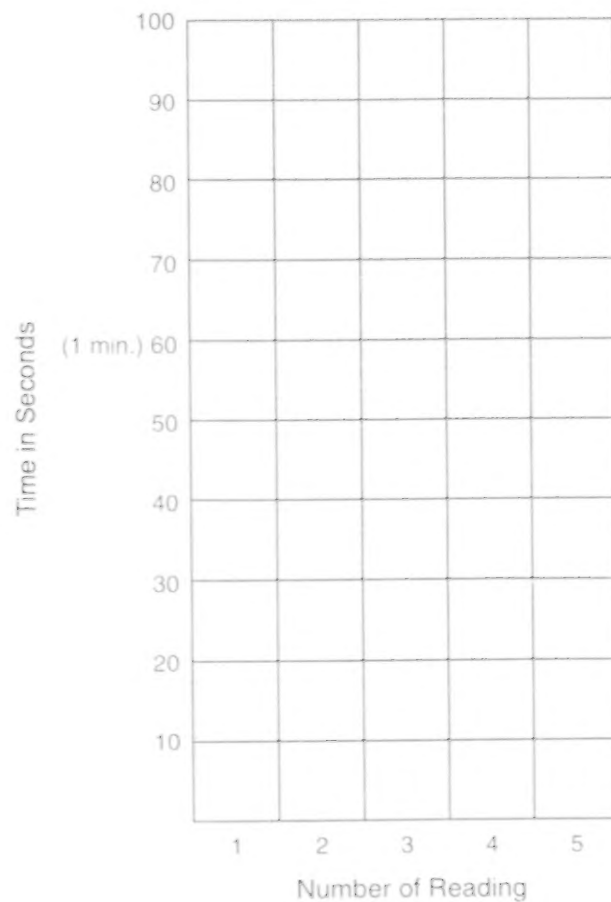
Student: _____

Date: _____

Book: _____

Page: _____ 100 words

Repeated Reading Record



Tricky Words	
1	
2	
3	
4	

Comments _____

Student's Helper _____

¹³⁰ From Edmonton Public School District No. 7. Reprinted with permission.

SQR³ — Strategy for Study¹³¹

This strategy can be used when studying a text or when using your notes as study tool.

Survey

Skim material to get an overall impression. Look for headings, subheadings, items in bold, etc.

Question

Devise questions that appear to be covered in the material and that are typical questions for the subject.

Read

Read the material to find the answer to your questions.

Recite

Cover the book or notes and say the answer to the question to yourself out loud if the setting permits. Some people find it helpful to write out their answers in short form as well as say them. The more parts of your brain you use, the better you learn!

Review

When you have finished this process with all the material to be studied, review your questions to be sure that you can still answer them.

¹³¹ Used with the permission of Bomford, Winram & Lane, School District No. 62 (Sooke). Originally published in *Teaching students with learning and behavioral differences: a resource guide for teachers* (p. 74), by British Columbia Ministry of Education, Skills and Training, 1996. Reprinted with permission.

Be A Better Listener¹³²



¹³² From Brenda Whittam-Neary. Speech-language pathologist, Glenrose Rehabilitation Hospital. Reprinted with verbal permission.

Be A Better Speaker¹³³



¹³³ From Laura Krenz. Elk Island Public Schools. Reprinted with verbal permission.

Metacomprehension Strategy Index¹³⁴

Student:

Grade/Level:

Date:

Directions: Think about what kinds of things you can do to help you understand a story better before, during, and after you read it. Read each of the lists of four statements and decide which one of them would help you the most. There are no right answers. It is just what you think would help the most. Circle the letter of the statement you choose.

I. In each set of four, choose the one statement which tells a good thing to do to help you understand a story better before you read it.

1. Before I begin reading, it's a good idea to:
 - A. See how many pages are in the story.
 - B. Look up all of the big words in the dictionary.
 - C. Make some guesses about what I think will happen in the story.
 - D. Think about what has happened so far in the story.
2. Before I begin reading, it's a good idea to:
 - A. Look at the pictures to see what the story is about.
 - B. Decide how long it will take me to read the story.
 - C. Sound out the words I don't know.
 - D. Check to see if the story is making sense.
3. Before I begin reading, it's a good idea to:
 - A. Ask someone to read the story to me.
 - B. Read the title to see what the story is about.
 - C. Check to see if most of the words have long or short vowels in them.
 - D. Check to see if the pictures are in order and make sense.
4. Before I begin reading, it's a good idea to:
 - A. Check to see that no pages are missing.
 - B. Make a list of the words I'm not sure about.
 - C. Use the title and pictures to help me make guesses about what will happen in the story.
 - D. Read the last sentence so I will know how the story ends.
5. Before I begin reading, it's a good idea to:
 - A. Decide on why I am going to read the story.
 - B. Use the difficult words to help me make guesses about what will happen in the story.
 - C. Re-read some parts to see if I can figure out what is happening if things aren't making sense.
 - D. Ask for help with difficult words.
6. Before I begin reading, it's a good idea to:
 - A. Retell all of the main points that have happened so far.
 - B. Ask myself questions that I would like to have answered in the story.
 - C. Think about the meanings of the words which have more than one meaning.
 - D. Look through the story to find all of the words with three or more syllables.

¹³⁴ From "A Questionnaire to measure children's awareness of strategic reading processes," by M. C. Schmitt, 1990, *The Reading Teacher*, 43(7), pp. 455, 459-461. Reprinted by permission of Maribeth Cassidy Schmitt and the International Reading Association. All rights reserved.

7. Before I begin reading, it's a good idea to:
 - A. Check to see if I have read this story before.
 - B. Use my questions and guesses as a reason for reading the story.
 - C. Make sure I can pronounce all of the words before I start.
 - D. Think of a better title for the story.
 8. Before I begin reading, it's a good idea to:
 - A. Think of what I already know about the things I see in the pictures.
 - B. See how many pages are in the story.
 - C. Choose the best part of the story to read again.
 - D. Read the story aloud to someone.
 9. Before I begin reading, it's a good idea to:
 - A. Practise reading the story aloud.
 - B. Retell all of the main points to make sure I can remember the story.
 - C. Think of what the people in the story might be like.
 - D. Decide if I have enough time to read the story.
 10. Before I begin reading, it's a good idea to:
 - A. Check to see if I am understanding the story so far.
 - B. Check to see if the words have more than one meaning.
 - C. Think about where the story might be taking place.
 - D. List all of the important details.
- II. In each set of four, choose the one statement which tells a good thing to do to help you understand a story better while you are reading it.**
11. While I'm reading, it's a good idea to:
 - A. Read the story very slowly so that I will not miss any important parts.
 - B. Read the title to see what the story is about.
 - C. Check to see if the pictures have anything missing.
 - D. Check to see if the story is making sense by seeing if I can tell what's happened so far.
 12. While I'm reading, it's a good idea to:
 - A. Stop to retell the main points to see if I understand what has happened so far.
 - B. Read the story quickly so that I can find out what happened.
 - C. Read only the beginning and the end of the story to find out what it is about.
 - D. Skip the parts that are too difficult for me.
 13. While I'm reading, it's a good idea to:
 - A. Look all of the big words up in the dictionary.
 - B. Put the book away and find another one if things aren't making sense.
 - C. Keep thinking about the title and the pictures to help me decide what is going to happen next.
 - D. Keep track of how many pages I have left to read.
 14. While I'm reading, it's a good idea to:
 - A. Keep track of how long it is taking me to read the story.
 - B. Check to see if I can answer any of the questions I asked before I started reading.
 - C. Read the title to see what the story is going to be about.
 - D. Add the missing details to the pictures.
 15. While I'm reading, it's a good idea to:
 - A. Have someone read the story aloud to me.
 - B. Keep track of how many pages I have read.
 - C. List the story's main character.
 - D. Check to see if my guesses are right or wrong.

Entire page taken from "A Questionnaire to measure children's awareness of strategic reading processes," by M. C. Schmitt, 1990, *The Reading Teacher*, 43(7), pp. 455, 459-461. Reprinted by permission of Maribeth Cassidy Schmitt and the International Reading Association. All rights reserved.

16. While I'm reading, it's a good idea to:
 - A. Check to see that the characters are real.
 - B. Make a lot of guesses about what is going to happen next.
 - C. Not look at the pictures because they might confuse me.
 - D. Read the story aloud to someone.
 17. While I'm reading, it's a good idea to:
 - A. Try to answer the questions I asked myself.
 - B. Try not to confuse what I already know with what I'm reading about.
 - C. Read the story silently.
 - D. Check to see if I am saying the new vocabulary words correctly.
 18. While I'm reading, it's a good idea to:
 - A. Try to see if my guesses are going to be right or wrong.
 - B. Re-read to be sure I haven't missed any of the words.
 - C. Decide on why I am reading the story.
 - D. List what happened first, second, third, and so on.
 19. While I'm reading, it's a good idea to:
 - A. See if I can recognize the new vocabulary words.
 - B. Be careful not to skip any parts of the story.
 - C. Check to see how many of the words I already know.
 - D. Keep thinking of what I already know about the things and ideas in the story to help me decide what is going to happen.
 20. While I'm reading, it's a good idea to:
 - A. Re-read some parts or read ahead to see if I can figure out what is happening if things aren't making sense.
 - B. Take my time reading so that I can be sure I understand what is happening.
 - C. Change the ending so that it makes sense.
 - D. Check to see if there are enough pictures to help make the story ideas clear.
- III. In each set of four, choose the one statement which tells a good thing to do to help you understand a story better after you have read it.
21. After I've read a story it's a good idea to:
 - A. Count how many pages I read with no mistakes.
 - B. Check to see if there were enough pictures to go with the story to make it interesting.
 - C. Check to see if I met my purpose for reading the story.
 - D. Underline the causes and effects.
 22. After I've read a story it's a good idea to:
 - A. Underline the main idea.
 - B. Retell the main points of the whole story so that I can check to see if I understood it.
 - C. Read the story again to be sure I said all of the words right.
 - D. Practise reading the story aloud.
 23. After I've read a story it's a good idea to:
 - A. Read the title and look over the story to see what it is about.
 - B. Check to see if I skipped any of the vocabulary words.
 - C. Think about what made me make good or bad predictions.
 - D. Make a guess about what will happen next in the story.
 24. After I've read a story it's a good idea to:
 - A. Look up all of the big words in the dictionary.
 - B. Read the best parts aloud.
 - C. Have someone read the story aloud to me.
 - D. Think about how the story was like something I already knew before I started reading.

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25. After I've read a story it's a good idea to:
- A. Think about how I would have acted if I were the main character in the story.
 - B. Practise reading the story silently for practice of good reading.
 - C. Look over the story title and pictures to see what will happen.
 - D. Make a list of the things I understood the most.

Responses which indicate metacomprehension strategy awareness

1. C	10. C	18. A
2. A	11. D	19. D
3. B	12. A	20. A
4. C	13. C	21. C
5. A	14. B	22. A
6. B	15. D	23. C
7. B	16. B	24. D
8. A	17. A	25. A
9. C		

Strategies measured by the Metacomprehension Strategy Index (MSI)

The Metacomprehension Strategy Index is a 25-item, four-option, multiple-choice questionnaire that asks students about the strategies they could use before, during and after reading a narrative selection. The MSI assesses students' awareness of a variety of metacomprehension behaviors that fit within six broad categories. The following table correlates individual MSI items to the six categories.

Predicting and verifying

Predicting the content of a story promotes active comprehension by giving readers a purpose for reading; i.e., to verify predictions. Evaluating predictions and generating new ones as necessary enhances the constructive nature of the reading process.

Item no's. 1, 4, 13, 15, 16, 18, 23

Previewing

Previewing the text facilitates comprehension by activating background knowledge and providing information for making predictions.

Item no's. 2, 3

Purpose setting

Reading with a purpose promotes active, strategic reading.

Item no's. 5, 7, 21

Self-questioning

Generating questions to be answered promotes active comprehension by giving readers a purpose for reading; i.e., to answer the questions.

Item no's. 6, 14, 17

Drawing from background knowledge

Activating and incorporating information from background knowledge contributes to comprehension by helping readers make inferences and generate predictions.

Item no's. 8, 9, 10, 19, 24, 25

Summarizing and applying fix-up strategies

Summarizing the content at various points in the story serves as a form of comprehension monitoring. Re-reading, or suspending judgment and reading on when comprehension breaks down, represents strategic reading.

Item no's. 11, 12, 20, 22

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Plan Think-Sheet¹³⁵

The Plan Think-Sheet cues students to consider their writing purpose or goals, their intended audience and their background knowledge related to their selected topic. The Plan Think-Sheet contains such questions as: Who am I writing for? (audience), Why am I writing this? (purpose), What do I know? (memory search and activation of background knowledge), and How can I group my ideas? (categorizing ideas). These questions are used to prompt students to perform specific planning activities, while emphasizing the development of self-instructional statements important to the activation and control of planning strategies.

PLAN																	
Name _____	Date _____																
TOPIC: _____																	
WHO: Who am I writing for? _____ _____																	
WHY: Why am I writing this? _____ _____																	
WHAT: What do I know? (Brainstorm) <table style="width: 100%; border: none;"> <tr><td style="width: 20px;">1.</td><td>_____</td></tr> <tr><td>2.</td><td>_____</td></tr> <tr><td>3.</td><td>_____</td></tr> <tr><td>4.</td><td>_____</td></tr> <tr><td>5.</td><td>_____</td></tr> <tr><td>6.</td><td>_____</td></tr> <tr><td>7.</td><td>_____</td></tr> <tr><td>8.</td><td>_____</td></tr> </table>		1.	_____	2.	_____	3.	_____	4.	_____	5.	_____	6.	_____	7.	_____	8.	_____
1.	_____																
2.	_____																
3.	_____																
4.	_____																
5.	_____																
6.	_____																
7.	_____																
8.	_____																
HOW: How can I group my ideas? <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: 1px solid black; height: 20px;"></td> <td style="width: 50%; border: 1px solid black; height: 20px;"></td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> </tr> <tr> <td style="border: 1px solid black; height: 20px;"></td> <td style="border: 1px solid black; height: 20px;"></td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> </tr> </table>				_____	_____	_____	_____			_____	_____	_____	_____				
_____	_____																
_____	_____																
_____	_____																
_____	_____																
How will I organize my ideas? <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> ☐ Comparison/Contrast </td> <td style="width: 50%; border: none;"> ☐ Problem/Solution </td> </tr> <tr> <td style="border: none;"> ☐ Explanation </td> <td style="border: none;"> ☐ Other </td> </tr> </table>		☐ Comparison/Contrast	☐ Problem/Solution	☐ Explanation	☐ Other												
☐ Comparison/Contrast	☐ Problem/Solution																
☐ Explanation	☐ Other																

¹³⁵ From *Developing successful writers through cognitive strategy instruction* (pp. 126, 127), by C. S. Englert & T. E. Raphael in J. Brophy (ed.), *Advances in research on teaching*, Volume I, pp. 105-151, 1989, Greenwich, CT: JAI Press Inc. Reprinted with permission.

Story Structure¹³⁶

Using Story Structure Charts

1. Ask students to identify the features of a story they have read by writing or drawing their interpretations in the appropriate section of the structure chart.
2. You may wish to demonstrate completing a chart with the whole class or small groups before students are asked to work independently.

Name _____

Date _____

Title _____

Author _____

Beginning

Characters . _____

When _____

Where _____

Middle

Problem (What made the story happen?) _____

What did the characters do to try to solve the problem? _____

End

How did the story end? _____

¹³⁶ From *Alberta diagnostic reading program handbook 5: diagnostic teaching in a language learning framework* (p. 62), by Alberta Education, 1993, Edmonton, AB: Alberta Education. Reprinted with permission.

Story Structure¹³⁶

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2. You may wish to demonstrate completing a chart with the whole class or small groups before students are asked to work independently.

Name _____

Date _____

Title _____

Author _____

Setting

Characters _____

Time _____

Place _____

Problem

What did they do about the problem?

End

¹³⁶ From *Alberta diagnostic reading program handbook 5: diagnostic teaching in a language learning framework* (p. 62), by Alberta Education, 1993, Edmonton, AB: Alberta Education. Reprinted with permission.

Editing Checklist¹³⁷

S.W.E.A.T.S.

Place a check mark in the boxes when you have completed editing each item.

Sentence Structure ☐

Word Choice ☐

Ending ☐

Attention Grabber ☐

Thoughts ☐

Sequences ☐

Writer _____

Editor _____

Date _____

¹³⁷ Used with the permission of Bomford, Winram & Lane, School District No. 62 (Sooke). Originally published in *Teaching students with learning and behavioral differences: a resource guide for teachers* (p. 70), by British Columbia Ministry of Education, Skills and Training, 1996. Reprinted with permission.

Editing Rating Scale¹³⁸

Student's Name: _____
 School: _____
 Teacher: _____
 Year: _____
 Date (start/follow-up): _____
 Overall skill rating (rate yourself using 1–10 scale): _____

S.W.E.A.T.S.

An editor "S.W.E.A.T.S." over the parts of his or her drafts.
 Rate your ability to write using the skills listed below.
 Circle the number that describes how well you are doing.

	Help	½ Way O.K.	Great!
S entence Structure:			
1. I use varied sentence length and sentence types.	1 2 3 4	5 6 7	8 9 10
2. I use varied word or phrase order.	1 2 3 4	5 6 7	8 9 10
W ord Choice:			
3. My words are varied, interesting and precise.	1 2 3 4	5 6 7	8 9 10
E nding:			
4. The ending ties my ideas together or sums up my thoughts.	1 2 3 4	5 6 7	8 9 10
A ttention Grabber:			
5. The beginning hooks the audience (it is interesting or makes the reader want to read further).	1 2 3 4	5 6 7	8 9 10
6. My beginning sets the stage or states the main idea of my writing.	1 2 3 4	5 6 7	8 9 10
T hought:			
7. I write in clear, complete thoughts.	1 2 3 4	5 6 7	8 9 10
8. My ideas are interesting and appropriate for the reader.	1 2 3 4	5 6 7	8 9 10
S equence:			
9. The sentences follow a logical order and flow smoothly from one to the next.	1 2 3 4	5 6 7	8 9 10
10. All of my sentences focus on my topic.	1 2 3 4	5 6 7	8 9 10

¹³⁸ Used with the permission of Bomford, Winram & Lane, School District No. 62 (Sooke). Originally published in *Teaching students with learning and behavioral differences: a resource guide for teachers* (p. 71), by British Columbia Ministry of Education, Skills and Training, 1996. Reprinted with permission.

Error Monitoring¹³⁹

Capitalization

- ☐ Is the first word of each sentence capitalized?
- ☐ Have I capitalized all proper nouns?
- ☐ If I'm unsure of something, have I asked for help?

Overall Editing and Appearance

- ☐ Is my handwriting well spaced and is it legible?
- ☐ Is my paper neat? (Without smudges, not crumpled, not ripped.)
- ☐ Have I indented and kept straight margins?
- ☐ Have I used complete sentences?
- ☐ If I'm unsure of something, have I asked for help?

Punctuation

- ☐ Do I have the right punctuation mark at the end of each sentence?
- ☐ Have I used commas where they are needed? (In series, to separate thoughts.)
- ☐ If I'm unsure of something, have I asked for help?

Spelling

- ☐ Eyeball it. Does it look right?
- ☐ Have I tried to sound it out?
- ☐ Have I looked it up in the dictionary?
- ☐ If I'm unsure of something, have I asked for help?

¹³⁹ Used with the permission of Bomford, Winram & Lane, School District No. 62 (Sooke). Originally published in *Teaching students with learning and behavioral differences: a resource guide for teachers* (p. 72), by British Columbia Ministry of Education, Skills and Training, 1996. Reprinted with permission.

"COPS" Proof Reading Strategy¹⁴⁰

Capitalization

Have I used capital letters at the beginning of sentences and for all proper nouns?

Overall appearance

Is my work neat and attractively presented?

Punctuation

Have I followed all the rules of punctuation?

Spelling

Have I gone back to check that each word looks correct?

After teaching the **COPS** editing strategy, students can use the technique for peer editing. This form is used as part of the editing process. Rough drafts are checked and initialed by the student, a peer and finally by teacher or teaching assistant.

Looking at my work:

	C	O	P	S
Self				
Peer				
Adult				

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Attention-deficit/Hyperactivity Disorder Checklist¹⁴¹

This checklist is for the screening of students who have problems with attention because they are extremely hyperactive. Many students will show the checklist behaviours to some degree at one time or another. Only consider the student to have a problem if the amount and persistence of the hyperactive behaviour is beyond that expected of a student of a particular developmental age.

Instructions:

Review an individual student's behaviour over a period of at least two weeks in a variety of situations and then check those items which apply to that student for that period. If you want to see how behaviours vary over time, the checklist covers two periods.

At least two behaviours in each of the first three areas of the checklist indicate an existing or potential problem. Additional items checked indicate an increasingly severe problem.

Also consider the amount of physical activity an active student needs and ensure this is available.

Attention-deficit/Hyperactivity Disorder Checklist

Student's Name: _____ Period ①: _____ Period ②: _____

Activities/Subjects Observed: _____

Period ①	Period ②	
☐	☐	Is extremely overactive, always on the go.
☐	☐	Continually moves parts of the body.
☐	☐	Is fidgety and restless.
☐	☐	Doesn't stay seated, may wander around the room.
☐	☐	Talks a lot.
☐	☐	Doesn't stay on task for an appropriate period of time.
☐	☐	Is easily diverted from work, rarely finishes tasks.
☐	☐	Doesn't attend to full directions for task completion.
☐	☐	Is poorly organized and messy.
☐	☐	Loses things needed for work, comes to class unprepared.
☐	☐	Has difficulty with change in routine.
☐	☐	Speaks out impulsively.
☐	☐	Interrupts other students at their work.
☐	☐	Disrupts other students at play.
☐	☐	Begins before directions are complete, has a hard time waiting for turn.
☐	☐	Doesn't consider the consequences of dangerous activities.
☐	☐	Has poor eye-hand coordination.
☐	☐	Generally does poorly in schoolwork.
☐	☐	Works better in one-on-one teaching situation.

¹⁴¹ From *Teacher alert system: a guide for teacher managed assessment of students who are "at risk" of school failure* (pp. III.34-35), by Special Education Branch, 1991, Edmonton, AB: Alberta Education. Reprinted with permission.

ADAPT (Attention Deficit Accommodation Plan for Teaching)¹⁴²*Inattention*

- seat student in quiet area
- seat student near good role model
- seat student near study buddy
- increase distance between desks
- allow extra time to complete assigned work
- shorten assignments or work periods to coincide with span of attention, use timer
- break long assignments into smaller parts so student can see end to work
- assist student in setting short-term goals
- give assignments one at a time to avoid work overload
- require fewer correct responses for grade
- reduce amount of homework
- instruct student in self-monitoring using cueing
- pair written instructions with oral instructions
- provide peer assistance in note-taking
- give clear, concise instructions
- seek to involve student in lesson presentation
- cue student to stay on task, i.e., private signal

Compliance

- praise compliant behaviour
- provide immediate feedback
- ignore minor misbehaviour
- use teacher attention to reinforce positive behaviour
- use prudent reprimands for misbehaviour; i.e., avoid lecturing or criticism
- acknowledge positive behaviour of nearby student
- supervise student closely during transition times
- seat student near teacher
- set up behaviour contract
- implement classroom behaviour management system¹⁴³
- instruct student in self-monitoring of behaviour

Impulsiveness

- ignore minor, inappropriate behaviour
- increase immediacy of rewards and consequences
- use time-out procedures for misbehaviour
- supervise closely during transition times
- use prudent reprimands for misbehaviour; i.e., avoid lecturing or criticism
- attend to positive behaviour with compliments, etc.
- acknowledge positive behaviour of nearby student
- seat student near good role model or teacher
- set up behaviour contract
- instruct student in self-monitoring of behaviour; i.e., hand raising, calling out
- call on only when hand is raised in appropriate manner
- praise student when raising hand to answer question

Academic Skills

- if reading is weak: provide additional reading time, use previewing strategies, select text with less on a page, shorten amount of required reading, avoid oral reading
- if oral expression is weak: accept all oral responses, substitute display for oral report, encourage student to tell about new ideas or experiences, pick topics easy for student to talk about
- if written language is weak: accept non-written forms for reports; i.e., displays, oral, projects, accept use of typewriter, word processor, tape recorder; do not assign large quantity of written work; test with multiple choice or fill-in questions
- if mathematics is weak: allow use of calculator, use graph paper to space numbers, provide additional mathematics time, provide immediate correctness feedback and instruction via modelling of the correct computational procedure

Motor Activity

- allow student to stand at times while working
- provide opportunity for seat breaks; i.e., run errands, etc.
- provide short break between assignments
- supervise closely during transition times
- remind student to check over work product if performance is rushed and careless
- give extra time to complete tasks (especially for students with low-motor tempo)

Organization/Planning

- ask for parental help in encouraging organization
- provide organization rules
- encourage student to have notebook with dividers and folders for work
- provide student with homework assignment book
- supervise writing down of homework assignments
- send daily/weekly progress reports home
- regularly check desk and notebook for neatness, encourage neatness rather than penalizing sloppiness
- allow student to have extra set of books at home
- give assignments one at a time
- assist student in setting short-term goals
- do not penalize for poor handwriting if visual-motor deficits are present
- encourage learning of keyboarding skills
- allow student to tape record assignments or homework

Mood

- provide reassurance and encouragement
- frequently compliment positive behaviour and work product
- speak softly in non-threatening manner if student shows nervousness
- review instructions when giving new assignments to make sure student comprehends directions
- look for opportunities for student to display leadership role in class
- conference frequently with parents to learn about student's interests and achievements outside of school
- send positive notes home
- make time to talk alone with student
- encourage social interactions with classmates if student is withdrawn or excessively shy
- reinforce frequently when signs of frustration are noticed
- look for signs of stress build-up and provide encouragement or reduced work load to alleviate pressure and avoid temper outburst
- spend more time talking to students who seem pent up or display anger easily
- provide brief training in anger control: encourage student to walk away, use calming strategies, tell nearby adult if getting angry

Socialization

- praise appropriate behaviour
- monitor social interactions
- set up social behaviour goals with student and implement reward program
- prompt appropriate social behaviour either verbally or with private signal
- encourage cooperative learning tasks with other students
- provide small group social skills training
- praise student frequently
- assign special responsibilities to student in presence of peer group so others observe student in a positive light

¹⁴² From *Accommodations help students with Attention Deficit Disorder*, by Harvey C. Parker, 1993, Florida: A.D.D. Warehouse Catalog. Adapted and reprinted with permission.

Medication Chart to Treat Attention Deficit Disorders¹⁴²

DRUG	COMMON SIDE EFFECTS	DURATION OF BEHAVIOURAL EFFECTS	PROS	PRECAUTIONS
RITALIN® Methylphenidate	Insomnia, decreased appetite, weight loss, headache, irritability, stomachache.	3-4 hours	Works quickly (within 30-60 minutes); effective in 70 per cent of patients; good safety record.	Not recommended in patients with marked anxiety, motor tics or with family history of Tourette syndrome.
RITALIN-SR® Methylphenidate	Insomnia, decreased appetite, weight loss, headache, irritability, stomachache.	About 7 hours	Particularly useful for adolescents with AD/HD to avoid noontime dose; good safety record.	Slow onset of action (1-2 hours); not recommended in patients with marked anxiety, motor tics or with family history of Tourette syndrome.
DEXEDRINE® Dextroamphetamine	Insomnia, decreased appetite, weight loss, headache, irritability, stomachache.	3-4 hours (tablet) 8-10 hours (spansule)	Works quickly (within 30-60 minutes); may avoid noontime dose in spansule form; good safety record.	Not recommended in patients with marked anxiety, motor tics or with family history of Tourette syndrome.
CYLERT® Pemoline	Insomnia, agitation, headaches, stomachaches; infrequently, abnormal liver function tests have been reported.	12-24 hours	Given only once a day.	May take 2-4 weeks for clinical response; regular blood tests needed to check liver function.
TOFRANIL® Imipramine Hydrochloride	Dry mouth, decreased appetite, headache, stomachache, dizziness, constipation, mild tachycardia.	12-24 hours	Helpful for AD/HD patients with comorbid depression or anxiety; lasts throughout day.	May take 2-4 weeks for clinical response; to detect pre-existing cardiac conduction defect, a baseline ECG may be recommended. Discontinue gradually.
NORPRAMIN® Desipramine Hydrochloride	Dry mouth, decreased appetite, headache, stomachache, dizziness, constipation, mild tachycardia.	12-24 hours	Helpful for AD/HD patients with comorbid depression or anxiety; lasts throughout day.	May take 2-4 weeks for clinical response; to detect pre-existing cardiac condition defect, a baseline ECG may be recommended. Discontinue gradually.
CATAPRES® Clonidine Hydrochloride	Sleepiness, hypotension, headache, dizziness, stomachache, nausea, dry mouth, localized skin reactions with patch.	3-6 hours (oral form) 5 days (skin patch)	Helpful for AD/HD patients with comorbid tic disorder or severe hyperactivity and/or aggression.	Sudden discontinuation could result in rebound hypertension; to avoid daytime tiredness starting dose given at bedtime and increased slowly.

¹⁴² From *Accommodations help students with Attention Deficit Disorder*, by Harvey C. Parker, 1993, Florida: A.D.D. Warehouse Catalog. Adapted and reprinted with permission.

Students with Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE)¹⁴³ — Preschool

Environment	Language Development	Mathematics
• The environment should be calm and quiet: – Soft music may be calming. – Tone down classrooms so they are not overly stimulating. – Keep a minimal number of objects hanging from the ceiling and on the walls. – Use calm colours of paint on the walls. – Use headphones for quiet time. (Students with FAS/FAE are not always able to block out other noises.) • Structure: – Establish a few simple rules. – Repeatedly enforce the same rules in the same way. – Use the same language when enforcing rules. • Transition from one activity to another: – Tell students what they will be doing: We'll finish painting then we'll eat a snack. – Give the student an object to help make the transition. The student could carry a book to story time, a puppet to the puppet story or a toothbrush after snack time.	• Students who are not talking: – Begin with simple story books. – The teacher can touch an object and name the object for the student. – Use the names of real objects; e.g., trees, cars, dog. • Students who are talking using single words: – If the student says "drink," say, "more drink" to stimulate more words in the student's vocabulary. – Expand the student's vocabulary slowly. When the student starts using two words at a time, start using three words, "want more drink." – Talk with the student at the student's level. Use short sentences. • Poor articulation/vocabulary: – A speech-language pathologist is a good resource for the student and teacher. – Model proper pronunciation. – Go around the classroom, touch and name the objects. – Have the student do the same thing. – Meal time. Have the student say what he or she wants rather than just giving what one thinks the student wants. – Music activities can help students learn vocabulary: • Good morning song. • Song before the students eat. • Name songs. • Circle game songs — sit down, stand up, name games. • Sign language may be helpful in teaching students with FAS even when they do not have a hearing loss. Sign language is concrete, visible and can be used along with verbal language.	• Memorized counting from one to 10 does not mean the student understands the numbers. • Teach the student what the number one means before any more numbers are taught: Give me one crayon. Put one napkin on the table. • Cut numbers out of paper. Glue oatmeal, rice, glitter, etc. to the number so the student can see, feel and hear the number. • Touch and count objects.

¹⁴³ From *Fantastic anyone succeeds! experiences in educating children with Fetal Alcohol Syndrome* (pp. 323–339), by editors Judith Kleinfeld & Siobhan Wescott, 1993, Fairbanks, AK: University of Alaska Press. Adapted and reprinted with permission.

Students with Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE)¹⁴³ — Preschool (cont'd)

Alphabet	Sensory Stimulation to Teach Each Concept	Short Attention Span
• Make letters with paper and glue objects to the letters. • Match letters and words to pictures. • Use the sounds of the letters repeatedly: J, juice, jump, jacket, etc. • Cut a letter out of sandpaper and have the student follow the sandpaper letter with his or her finger. • Make dots on a paper in the shape of a letter and have the student connect the dots to make the letter, gradually decreasing the number of dots to connect to make the letter. • Make letters with jiggler jello. • When students are learning to write their names, some may find it easier to use all capital letters at the beginning.	• Teach a concept through different sensory methods. • Teaching the colour orange: – Wear orange clothes. – Paint with orange paint. – Use orange construction paper for projects. – Serve oranges for a snack. – Sit on an orange rug. • Use objects as much as possible to teach concepts, such as circles: – Laminate polka dot fabric. – Use a cookie cutter to cut circle sandwiches. – Cut circles from construction paper and glue Cheerios on the paper. • Use concrete teaching activities: – Example:** The child is told to stay in the yard but continuously wanders into the street. Parents obtained four large orange cones and had the child stay inside the four cones. Parents gradually expanded the cones. – Avoid abstract questions; e.g., "What do you want?" – Give student choices he or she can see, feel, touch and hear.	• Determine how long the student is working on an activity. • Ask the student to do one more: – Example: If the student is drawing circles on paper and decides to quit, have the student draw one more circle. The teacher should never make the student do the activity more than once after saying, "draw one . . ."

¹⁴³ From *Fantastic antone succeeds! experiences in educating children with Fetal Alcohol Syndrome* (pp. 323–339), by editors Judith Kleinfeld & Siobhan Wescott, 1993, Fairbanks, AK: University of Alaska Press. Adapted and reprinted with permission.

** The orange cone example referred to above is the result of a personal communication from the parent of an adolescent child with FAS, given to Ann Streissguth, Carole Guinta & Robin A. LaDue, August 1984.

Students with Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE)¹⁴³ — Preschool (cont'd)

Managing Hyperactivity

- | | |
|---|--|
| <ul style="list-style-type: none"> • Keep the environment structured. • Make a picture calendar: <ul style="list-style-type: none"> – Make a board with hooks. – Laminate pictures of activities for the whole day. Examples: Have a picture of a student taking jacket off and hanging it up. Have a picture of student putting a puzzle together. – As the student completes each activity, the student takes the picture off the hook, turns it over and hangs it back on the hook. – The student knows that he or she has completed the activity. • Give the student a choice from two or three toys and plenty of time to make a choice. • Place each activity in two baskets: <ul style="list-style-type: none"> – Have two baskets for: puzzles, pegboards, matching activities, lacing cards, scissors and paper activities, etc. – Take the activity out of the start basket. When the student has finished the activity, he or she puts the activity in the finish basket. • Keep designated activities in the same place. • Hyperactive students may benefit from sitting on chairs rather than on the floor. The chair helps keep the student in a specific space. Show the student how to sit in the chair, if necessary (feet flat on the floor, hands on the side, sitting up straight). | <ul style="list-style-type: none"> • Hyperactive students who have difficulty sitting on a chair may sit on a floor mat or in an area on the floor marked by masking tape. • Have the activity at the table ready. The student may not sit at the table very long waiting for the teacher to bring an activity. • Structure the day alternating quiet time and active time. • Help the student control tantrums: <ul style="list-style-type: none"> – Take the student to a different room. Lullaby music in this room may help calm the student. – Hold the student. – The teacher's body language should not excite the student. Talk in a calm voice and walk slowly. If the teacher is relaxed, this will help the student relax. – Determine what happened before the tantrum occurred. Look for antecedents, what caused the student to lose his or her temper. – Look at different ways to eliminate the chances of a tantrum. If the student has an extremely difficult time with loud noises and lots of activity, he or she should be taught in a relatively quiet and calm area. – Reduce the likelihood of the student having a tantrum by teaching him or her to say, "I'm mad." • Determine whether the student's diet could be a contributing factor for the behaviour. |
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¹⁴³ From *Fantastic antone succeeds! experiences in educating children with Fetal Alcohol Syndrome* (pp. 323–339), by editors Judith Kleinfeld & Siobhan Wescott, 1993, Fairbanks, AK: University of Alaska Press. Adapted and reprinted with permission.

Students with Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE)¹⁴³ — Preschool (cont'd)

Social Behaviour	Eye-Hand Coordination Activities	Other Considerations
• Show the student how to share toys. You may need to use a timer to share the most popular toys. • Teach the student how to be a friend, demonstrating with puppets or dolls. • Teach the student how to sit with a friend at the table. • Pair students for a week so the student with developmental disabilities can learn from the other student.	• Use puzzles with knobs on the pieces, lace cards (may need masking tape on the end), clothes pins to squeeze, pegs to pound in pegboard. • The teacher may need to guide the student through the activity and then encourage the student to do the activity on his or her own. The teacher could pick up the puzzle piece for the student and put it in the right place in the puzzle or lace the first two holes of the lacing board. • Students with FAS/FAE usually need more one-to-one teaching.	• The following evaluations may be helpful in learning more about the student's development and assist in planning the teacher's activities: – speech and language evaluations – psychological evaluations – motor evaluations. • Observe the student for any contributing health problems. For example, with an ear infection, the student may pull at his or her ears. Ask the student to, "Show me where you hurt." • Ignore negative behaviour whenever possible and avoid overreaction. • Build in positive reinforcement. When the student finishes an activity or does a good job, let the student know he or she will receive an appropriate form of reinforcement. • If the student does not need sleep at nap time, he or she may benefit from activities such as riding a tricycle in the hall.

¹⁴³ From *Fantastic anyone succeeds! experiences in educating children with Fetal Alcohol Syndrome* (pp. 323–339), by editors Judith Kleinfeld & Siobhan Wescott, 1993, Fairbanks, AK: University of Alaska Press. Adapted and reprinted with permission.

Students with Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE)¹⁴³ — Elementary

Environment	Language Development
• The environment should be calm and quiet: – Soft calm music may relax the class during breaks. – Tone down classrooms so they are not overly stimulating. – Keep a minimal number of objects hanging from the ceiling and on the walls. – Use calm colours of paint on the walls. – Reduce classroom clutter. – Use soft colours on bulletin boards. (Bulletin boards should be covered when not in use.) – Use headphones for quiet time. (Students with FAS/FAE are not always able to block out other noises.) • Structure: – Establish a few simple rules. – Enforce the same rules in the same way. – Use the same language when enforcing rules. • Transition from one activity to another: – Give the student reminders for the ending and beginning of activities. Use a tactile signal. Touch shoulder, tap elbow and say, "The bell will ring in five minutes, you need to finish up. We will go to lunch when the bell rings." – Have the student follow a fairly consistent routine every day. – Provide notebooks which have all the student's classroom activities in order for the day. This gives the student a concrete item with which to structure his or her day. – Have the student carry the book to the reading area, or a puppet to the puppet story. – Give students several breaks during the day. Students may need sleep during the day or some may need to get up and move around more frequently than other students, and may need food snacks. Plan activities to facilitate movement and creative work between seat work assignments. – Class periods should not exceed 20 minutes.	• Talk with the student at the student's level. Use short sentences. • Poor articulation/vocabulary development: – A speech-language pathologist is a good resource for the student and teacher. – Model proper pronunciation. – Articulation errors are common. Accept students' communications without correcting them but repeat the sounds correctly. – Music activities can help the student learn vocabulary: • Good morning song. • Song before the students eat. • Name songs. • Circle game songs — sit down, stand up, name games. • Verbally label all items in the student's environment. – Provide repetition and review of new vocabulary and concepts. • Encourage high quality speech: – Be aware that quantity does not indicate quality. Students with FAS/FAE often talk a lot. – Listen for the number of words per sentence. – Listen for the number of new words the student uses. – Stress concept development through concrete examples, encouraging the student to demonstrate understanding. Example: Talk about temperatures so the student knows what to wear on a hot day and what to wear on a cold day. • Sign language may be helpful in teaching students with FAS/FAE even when they do not have a hearing loss. Sign language is concrete, visible and can be used along with verbal language.

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Students with Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE)¹⁴³ — Elementary (cont'd)

Mathematics	Alphabet	Reading
• Memorized counting from one to 10 does not mean the student understands numbers. Stress concept development of numbers, encouraging students to demonstrate knowledge. • Teach the student what the number one means before any more numbers are taught: Give me one crayon. Put one card on the table. • Cut numbers out of paper. Glue oatmeal, rice, glitter, etc. to the number so the student can see, feel and hear the number as well as manipulate objects that represent the number. • Touch and count objects. • Teach functional mathematics — money, time, and practical uses of addition and subtraction. • Use the student's fingers for addition and subtraction or a calculator. • These methods should not be a first choice but should not be ruled out. A calculator may be necessary for the student with FAS/FAE to do multiplication and division.	• Make letters with paper and glue objects to the letters. • Match letters to objects. Example: A — Apple. Next, match letters to pictures. • Follow the above sequence with words. Match words to words: Apple — Apple. • Insert new words into other activities, other class work and home activities. Have a Letter for the Day. Use the sounds of the letter repeatedly: J, juice, jump, jacket, etc. • Use green and red clues to indicate the beginning and ending of a letter and to encourage proper writing of letters.	• Teach left-to-right direction. Some students may have difficulty focusing their eyes on the left side of the page and moving their eyes to the right: – If a student uses a piece of paper to follow the line across the page, the student may have an easier time reading. – Use a green marker at the left side changing to red at the right side for written work. – Use coloured arrows to signal starting points and left-to-right direction. • Use books with simple, plain pictures. Small detailing marks in a picture can distract the student. • Provide books that follow the student's interest and independent reading levels. (Independent reading levels means the student can read 90–100 per cent of the words in the book.) • Read aloud to students daily and provide uninterrupted silent reading periods.

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Students with Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE)¹⁴³ — Elementary (cont'd)

Use Sensory Stimulation to Teach Each Concept	Social Behaviour
• Teach a concept through different sensory methods. • Teaching the colour orange: – Wear orange clothes. – Paint with orange paint. – Use orange construction paper for projects. – Serve oranges for a snack. – Sit on an orange rug. • Use objects as much as possible to teach concepts, such as circles: – Laminate polka dot fabric. – Use a cookie cutter to cut circle sandwiches. – Cut circles from construction paper and glue Cheerios on the paper. • Use concrete teaching activities: – Example:** The child is told to stay in the yard but continuously wanders into the street. Parents obtained four large orange cones and had the child stay inside the four cones. Parents gradually expanded the cones. – Set up a work-play schedule by using pictures, nesting cups, etc. Set out six nesting cups to show the student he or she has six activities to complete before taking a break. – Avoid abstract questions; e.g., "What do you want?" Give the student choices he or she can see, feel, touch and hear.	• Show the student how to share playground equipment. You may need to use a timer to share the most popular equipment. • Teach the student how to be a friend: – Use puppets or dolls. – Emphasize the feelings of others. – Practise using manners, consideration statements and apologies. • Teach the student how to sit with a friend at the table. Emphasize conversation, sharing and courtesy. • Use peer tutoring: – Pair students for a week so the student with FAS/FAE can learn from other students. – Allow students with FAS/FAE to help other students. Example: Jane will bring the basket around to pick up your papers. Have them ready when she gets to your desk. – Capitalize on academic strengths of the student with FAS/FAE.

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** The orange cone example referred to above is the result of a personal communication from the parent of an adolescent child with FAS, given to Ann Streissguth, Carole Guinta & Robin A. LaDue, August 1984.

Students with Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE)¹⁴³ — Elementary (cont'd)

Managing Hyperactivity

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| <ul style="list-style-type: none"> • Provide structure, routine and as few rules as possible. • Make a picture calendar: <ul style="list-style-type: none"> — Make a board with hooks. — Laminate pictures or take Polaroid pictures of the student doing activities during the day. Examples: Have a picture of a student taking jacket off and hanging it up. Have a picture of student putting puzzle together. — As the student completes each activity, the student takes the picture off the hook, turns it over and hangs it back on the hook. The student knows that he or she has completed the activity. • Make lists of assignments for the student to follow. (Students may need a list taped to their desks. Some students with FAS/FAE may have difficulty relating blackboard instructions to their own behaviour.) • Place each activity in two baskets: <ul style="list-style-type: none"> — Have two baskets for: puzzles, pegboards, matching activities, lacing cards, scissors and paper activities, etc. — Take the activity out of the start basket. When the student has finished the activity, he or she puts the activity in the finish basket. • Keep designated activities in the same place. • Enclose shelves and book cases, if possible, to eliminate visual distraction. • Use vivid colours, sound and movement to emphasize important concepts. • During organized activities, give hyperactive students structure. They need to know the sequence of the activity, what is expected of them and what behaviours will be acceptable. Example: During this activity we will stay in our chairs. There will be no talking. Keep your eyes on your own paper. If you want help, raise your hand and I will come to help you. • Balance loosely structured activities with highly structured activities to give the students opportunity to move about, visit and relax. • Structure the day alternating quiet times and active times. | <ul style="list-style-type: none"> • Help the student control tantrums: <ul style="list-style-type: none"> — Remain calm and quiet. The teacher's body language should not excite the student. Talk in a calm voice and walk slowly. If the teacher is relaxed, this will help the student relax. — Let the student know there is a protocol for loss of control. Taking the student's hand and holding it a short time will give the student a signal that the teacher thinks the student is losing control. If restraint is necessary, the teacher needs to exercise care and control. Talk to the student, telling him or her that you are helping control the behaviour. Example: I am going to hold on to you until you are calm. Are you feeling better? Let me know when you are ready for me to let go. — Take the student to a different room if necessary. Soft music and soft colours in the room may help calm the student. Talk to the student in a calm, soft voice. Ask the student to tell you when he or she is ready to go back to the classroom. — Determine what happened before the tantrum occurred. Look for antecedents, what caused the student to lose his or her temper. — Look at different ways to eliminate the chances of a tantrum. If the student has an extremely difficult time with loud noises and lots of activity, he or she should be taught in a relatively quiet, calm area. — Reduce the likelihood of a tantrum by teaching the student new ways of dealing with stress. Teach the student to say, "I'm mad." • Determine whether the student's diet could be a contributing factor. • Observe the student for any contributing health problems. For example, with an ear infection, the student may pull at his or her ears. Ask the student to, "Show me where you hurt." • Look for behaviours which may signify visual problems: abnormal head posturing, squinting, holding paper close to face, obvious errors made when working from the blackboard. • When possible, ignore negative behaviour and avoid overreaction. • Build in positive reinforcement: <ul style="list-style-type: none"> — As the student finishes each activity on the picture calendar, give student positive reinforcement for his or her efforts. — When the student does a good job on a project, tell the student. Example: I really like the way you wrote your K's. |
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Students with Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE)¹⁴³ — Elementary (cont'd)

Short Attention Span	Eye-Hand Coordination Activities	Other Considerations
• Determine how long the student is able to work on a given activity. • Expand this time by one more try and reinforce the student. • Determine what activity the student can attend to longest. What is it about that activity that allows him or her to attend? Generalize these features to other activities.	• Use puzzles with knobs on the pieces or lace cards. • Let student help with tasks that require sorting, stapling, putting things in place, etc. • The teacher may need to guide the student through the activity and then encourage the student to do the activity on his or her own. The teacher could pick up the puzzle piece for the student and put it in the right place in the puzzle or lace the first two holes of the lacing board.	• The following evaluations may be helpful in learning more about the student's development and assist in planning the teacher's activities: – speech and language evaluations – psychological evaluations – motor evaluations. • Students with FAS/FAE usually need more one-to-one teaching.

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Students with Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE)¹⁴³ — Junior & Senior High

Environment	Language Development	Mathematics
- The environment should be calm and quiet: - Soft calm music may relax the class during breaks. - Tone down classrooms so they are not overly stimulating. - Keep a minimal number of objects hanging from the ceiling and on the walls. - Use calm colours of paint on the walls. - Reduce classroom clutter. - Use soft colours on bulletin boards. (Bulletin boards should be covered when not in use.) - Use headphones for quiet time. (Students with FAS/FAE are not always able to block out other noises and may be distracted by a teacher talking with another student and even a ticking clock.) - Structure: - Establish a few simple rules. - Enforce the same rules in the same way. - Use the same language when enforcing rules. - Transition from one activity to another: - Give the student reminders for the ending and beginning of activities. Use a tactile signal. Touch shoulder, tap elbow and say, "The bell will ring in five minutes, you need to finish up. We will go to lunch when the bell rings." - Have the student follow a fairly consistent routine every day. Provide notebooks which have all the student's classroom activities in order for the day. This gives the student a concrete item with which to structure his or her day. - Have the student carry the book to the reading area. - Give students several breaks during the day. Students may need to get up and move around more frequently than other students, and may need food snacks. Plan activities to facilitate movement and creative work between seat work assignments. - Class periods should not exceed 30 minutes.*	- Recognize that students with FAS/FAE may have delayed language development. Use concrete basic language when giving instructions. Use simple sentences and avoid giving more than one instruction per sentence. - Sign language may be helpful in teaching students even when they do not have a hearing loss. Sign language is concrete, visible and can be used along with verbal language.	- Teach functional mathematics — money, time, practical use of addition and subtraction. - Encourage students to use strategies for counting; e.g., fingers, counting tools, calculators. - These techniques should not be the first choice but should not be ruled out. Note: Mathematics seems to be the most difficult subject for the student with FAS/FAE. Memorizing the multiplication tables may not be successful with all students who have FAS/FAE. Division may also be difficult.

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Students with Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE)¹⁴³ — Junior & Senior High (cont'd)

Reading	Vocational Education
• Teach left-to-right direction. Some students may have difficulty focusing their eyes on the left side of the page and moving their eyes to the right: – If a student uses a piece of paper to follow the line across the page, the student may have an easier time reading. – Use a green marker at the left side changing to red at the right side for written work. – Use coloured arrows to signal starting points and left-to-right direction. • Provide books that follow the student's interest and independent reading levels. (Independent reading levels means the student can read 90–100 per cent of the words in the book.) • Encourage reading for enjoyment and developing independence. – Incorporate popular magazines, newspapers and school papers into reading program. – Emphasize reading as a means to communications — note writing, letter writing, memos, posters, etc. • Read aloud to students daily and provide uninterrupted silent reading periods.	• Continue practising the basic skills necessary to live independently as adults, especially daily living and survival skills. • Help students learn how to transfer their skills using a variety of settings and people. • Curriculum should focus on recognizing and coping with being "different." • Curriculum should focus on assisting students to function as social human beings: – understanding the rules of social interaction – taking on responsibilities – making decisions and realizing their consequences – developing and practising independent living skills within a group setting, such as getting along with others in the same living space, sharing responsibilities, cooking and personal hygiene. • Curriculum should assist students to function in the world of work: – identify individual interests and aptitudes – develop self-scheduling skills, community mobility skills, rule-governed behaviour, etc. – develop and practise job-related skills.

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Students with Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE)¹⁴³ — Junior & Senior High (cont'd)

Managing Hyperactivity and Attention Details

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| <ul style="list-style-type: none"> • Provide structure, predictable routines and as few rules as possible. • Allow students to sit in their chairs as comfortably as possible. Rapidly growing students are often unable to maintain strict posture and enforcing it can be frustrating for both teachers and students. • Limit time frames for one activity to no more than 30 minutes if possible. • Help the student control tantrums: <ul style="list-style-type: none"> – Remain calm and quiet. The teacher's body language should not excite the student. Talk in a calm voice and walk slowly. If the teacher is relaxed, this will help the student relax. – Let the student know there is a protocol for loss of control. Taking the student's hand and holding it a short time will give the student a signal that the teacher thinks the student is losing control. If restraint is necessary, the teacher needs to exercise care and control. Talk to the student, telling him or her that you are helping control the behaviour. Example: I am going to hold on to you until you are calm. Are you feeling better? Let me know when you are ready for me to let go. – Take the student to a different room if necessary. Soft music and soft colours in the room may help calm the student. Talk to the student in a calm, soft voice. Ask the student to tell you when he or she is ready to go back to the classroom. – Determine what happened before the tantrum occurred. Look for antecedents, what caused the student to lose his or her temper. – Look at different ways to eliminate the chances of a tantrum. If the student has an extremely difficult time with loud noises and lots of activity, the student should be taught in a relatively quiet, calm area. – Reduce the likelihood of a tantrum by teaching the student new ways of dealing with stress. Teach the student to say, "I'm mad." | <ul style="list-style-type: none"> • Enclose shelves and book cases, if possible, to eliminate visual distraction. • Use vivid colours, sound and movement to emphasize important concepts. • During organized activities, hyperactive students need structure. They need to know the sequence of activity, what is expected of them and what behaviours will be acceptable. Example: During this activity we will stay in our chairs. There will be no talking. Keep your eyes on your own paper. If you want help, raise your hand and I will come to help you. • Balance loosely structured activities with highly structured activities to give students opportunity to move about, visit and relax. • Balance active and quiet activities. • Structure the day, alternating quiet time and active time. • Observe the student for any contributing health problems. For example, with an ear infection, the student may pull at his or her ears. Look for behaviours which may signify visual problems: abnormal head posturing, squinting, holding paper close to face, obvious errors made when working from the blackboard. • When possible, ignore negative behaviour and avoid overreaction. • Build in positive reinforcement: <ul style="list-style-type: none"> – As the student finishes each activity on the picture calendar, give the student positive reinforcement for his or her efforts. – When the student does a good job on a project, tell the student. Example: I really like the way you read the whole story. |
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**Students with Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE)¹⁴³ — Junior & Senior High
(cont'd)**

Sensory Stimulation and Concrete Activities to Teach Each Concept	Social Behaviour	Other Considerations
• Provide hands-on materials whenever possible. • Take students to actual site to teach learning objectives. • Allow students to make concrete choices. Instead of asking the abstract question, "What do you want?" Give the student choices he or she can see, feel, touch, hear.	• Teachers need to consult the school counsellor. It is important that teachers and counsellors work together using complementary techniques to best serve the student in the following areas: – inappropriate sexual behaviour – depression – loneliness and isolation – inappropriate expectations for work, school and independence. • Be emphatic, firm and realistic about expectations and performance from students.	• The following evaluations may be helpful in learning more about the student's development and assist in planning the teacher's activities: – speech and language evaluations – psychological evaluations – motor evaluations. • Students with FAS/FAE usually need more one-to-one teaching.

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Section 6

Other Teaching Resources

This listing is not to be construed as an explicit or implicit departmental approval for use of the resources listed. These titles are provided as a service only to assist school authorities to identify resources that contain potentially useful ideas. The responsibility to evaluate these resources prior to selection rests with the user, in accordance with any existing local policy.

Resources listed in this section can be ordered from the publishers. See Section 7, page LD, 302, for addresses.

Academic Domain

Access to reading and language arts (1994).
East Moline, IL: Linguisystems, Inc.

This resource provides elementary students with high-interest skill practice and strategies to help them succeed. There is a different *Access* book for each skill area at each grade level. The workbooks and teacher's editions include:

- vocabulary
- study skills
- literary concepts
- word analysis
- writing
- reading and listening comprehension.

Bailey's bookhouse: five captivating activities teach rhyming, stories, letters and words (MacIntosh software) (1993).
Redmond, WA: Edmark Corporation.

This software program is designed to help students in ECS to Grade 1 develop literacy skills. The program is full of lively characters, colourful graphics and music. Students explore interactive activities that help them learn about letter names, sounds and rhyming words. Many of the activities have an explore-and-discover mode and a question-and-answer mode, where students can use both divergent (many good answers) and convergent (one best answer) thinking. All directions, questions and feedback are spoken in lifelike voices.

Bold-2: behavioral objectives for learning disabilities (1992) (second edition) by Gerald Wallace, Joyce De Wolfe & Sharon Herman. Austin, TX: PRO-ED

This resource contains a sequence of objectives designed to meet curriculum needs of elementary students with learning disabilities.

The goal areas include: sensory-motor/readiness skills, conceptual skills, spoken language, reading, writing, mathematics, science/social studies, study/organization skills and social skills. The goals and objectives may be used in developing a student's individualized program plan.

Box cars & one-eyed jacks series by Jane Felling & Joanne Currah. Edmonton, AB: Box Cars Inc.

Volume I: Ready to use manipulative mathematics games for ECS to Grade 4 (1989)
ISBN 0-9695276-0-8.

This volume is divided into six sections with 106 games for counting, patterning, numeration, addition and subtraction, measurement and multiplication, and division. Each game indicates appropriate grade level, specific mathematics skills, number of players, equipment, rules, instructions and variations to increase or decrease difficulty or to change/add a skill.

Volume II: Ready to use manipulative math games for Grades 1-9 (1989)
ISBN 0-9695276-1-6.

This volume includes 113 mathematics games that focus on operations, place value,

addition and subtraction, multiplication, graphing and fractions.

Volume III: Special games with special dice (1989) ECS to Grade 9
ISBN 0-9695276-2-4.

This volume includes 50 games for 10-, 12- or 20-sided dice. Games may be played by students in Grades 1-7 but most are suitable for Grade 3 and up. Games are organized sequentially from the easiest to the most difficult.

Volume IV: Money matters for kids (1994) Grades 1-9, high school special needs
ISBN 0-9695276-4-0.

This volume contains card and dice games that teach money concepts, problem solving, probability and the operations. Contains 52 games and 20 whole class activities that teach counting change, trading coins, adding and subtracting change, and noting money. Some games, designed to help students make real-life connections, include making purchases, filling out cheques and deposit slips, estimating total purchases, and calculating tax.

Volume V: Math games for kids using 30-sided dice (1995) ECS to Grade 9
ISBN 0-9695276-5-9.

This volume contains 76 games using a special dice numbered 1-30. It includes games to teach place value concepts, graphing, patterns and fractions. Some games are for repetition and practice when a skill is first introduced while others are to be used once a skill has been taught.

Volume VI: On a roll to spelling . . . and more (1995) ECS to Grades 6
ISBN 0-9695276-6-7.

This volume includes 64 games to teach language and spelling. The simplest games introduce the alphabet and its sounds. The next section includes games to focus on word beginnings and endings, vowels, common letter combinations, and use of dictionaries. Section III includes games to explore rhyming concepts, graphic cues, compounds, antonyms and synonyms. Section IV has challenging games that develop vocabulary, spelling fluency, decision making and logical reasoning. The last section is intended to help older students build simple to complex sentences and deal with parts of speech.

Dyslexia: a teaching handbook (1990) by Michael Thomson & Bill Watkins. London, ENG: Whurr Publishers.
ISBN 1-870332-06-7.

This book is based on research and clinical observations. The authors incorporate their own experiences of working with students who have dyslexia and provide examples from their own curriculum. Detailed examples and descriptions of work sheets, word lists and other source material are provided in the appendices. Sources for further reading are included where appropriate. The resource can be used with students in Grades 1-12.

Focus series: reading for success (1988) by Richard Allington, Richard Cramer, Patricia Cunningham, G. Yvonne Perez, Constance Frazier Robinson & Robert Tierney. Glenview, IL: Scott, Foresman & Company.

Focus series includes titles for ECS to Grade 8. Specific titles for the grade levels can be obtained by contacting the publisher.

Focus is intended for students experiencing difficulty in the primary grades or who are reading two grades below level in Grades 4-8. Through interesting stories written at a low-readability level, less-able readers are encouraged to read.

For each grade level there are student books, teacher's editions and workbooks. Units include:

- getting started: oral language and concepts
- teaching word study skills and vocabulary
- teaching comprehension skills
- applying skills to reading
- meeting individual needs.

The "Great" series (1990) by Henry Billings & Melissa Stone. Austin, TX: Steck-Vaugh

Great adventures: 0-8114-4688-3

Great challenges: 0-8114-4689-1

Great disasters: 0-8114-4175-X

Great escapes: 0-8114-4177-6

Great firsts: 0-8114-4690-5

Great heroes: 0-8114-4691-3

Great mysteries: 0-8114-4178-4

Great rescues: 0-8114-4176-8.

Each title in the "Great" series contains workbook exercises in the following areas:

- comprehension — do you remember?
- vocabulary development — exploring words
- written expression — critical thinking: finding the sequence.

Written in a magazine-style format the books in the series are high-interest, low-vocabulary books for students in Grades 2–4.

Instant spelling words for writing (levels A–G) (1994) by Robert G. Forest & Rebecca A. Sitton. North Billerica, CA: Curriculum Associates, Inc.

Instant Spelling Words for Writing is a seven-level spelling series for students in Grades 2–8 that uses an integrated language approach to teach 1500 high-frequency words. The words are presented in priority order — the frequency with which they occur in everyday writing.

Each level contains teaching techniques for a structured 30-lesson program. Review lessons and extending words across the curriculum activities integrate spelling with listening, speaking, reading, writing and thinking.

This series offers a basic speller to complement elementary language arts and writing curriculums. Adolescent learners needing practice and reinforcement of spelling and writing skills can also benefit from this series.

Instructional strategies for students with special needs (1995) (second edition) by Carol Crealock & Dan Bachor. Scarborough, ON: Allyn & Bacon. Order from the Learning Resources Distributing Centre, Order #313510–01.

This second edition of *Instructional Strategies for Students with Special Needs* presents current issues in education for Canadian students with special needs in Grades 1–12. Chapters include a decision-making model and information on self-concept and affective education, assessment, and intervention for interfering behaviours. Four chapters address cognitive, mathematics, reading and writing strategies. The final chapters deal with

computer technology, secondary school issues, adults with special needs, and multicultural and Native education.

Mathematics for dyslexics: a teaching handbook (1993) by Stephen J. Chinn & J. Richard Ashcroft. San Diego, CA: Singular Publishing Group. ISBN 1–56593–250–1.

This book describes the problems that students with dyslexia face in mathematics. Chapters 1–3 address the definitions of dyslexia, potential areas of difficulty with mathematics, cognitive style in mathematics, and testing and diagnosis. Chapters 4–13 provide strategies which deal with specific problems in the areas of:

- concept of number
- addition and subtraction
- times tables
- computational procedures for addition and subtraction
- multiplication
- division
- fractions, decimals and percentages.

Micro-LADS (1992). Winooski, VT: Laureate Learning Systems, Inc. IBM system requirements: IBM compatible, 640K with MCGA or VGA graphics, hard drive, one 3.5" disk drive. ISBN 1–56405–014–9.

Micro-LADS (Microcomputer Language Assessment and Development System) is a software program series of seven modules designed to cover plurals and noun-verb agreement, verb forms, prepositions, pronouns, negatives, passives, wh-questions and prepositions. There are three levels of instruction used in this program. The first level uses instruction and a visual cue to the correct response. At the second level, the visual cue is faded and at the third level instruction is faded. At the end of the program, a lesson summary reports student performance and can be printed out for record keeping or saved to disk for future reference.

The Quick-Word™ handbook for beginning writers (1992). North Billerica, CA: Curriculum Associates, Inc. ISBN 1-55915-344-X.

This book contains 330 words, each introduced by a sentence that uses the word in context. The sentence helps students establish both the meaning and use of the word.

The Quick-Word™ handbook for everyday writers (1990) (Canadian edition). North Billerica, CA: Curriculum Associates, Inc. ISBN 1-55915-110-2.

Contains 1000 words listed alphabetically. Space is made available for students to add their own words as they are acquired. Homonyms are identified and placed into sentences to ensure understanding. A section at the back includes common abbreviations, provinces, states, months, days and numbers. For use with upper elementary and junior high students.

The Quick-Word™ handbook for practical writing (1994) (second edition). North Billerica, CA: Curriculum Associates, Inc. ISBN: 1-55915-349-0

This book is for the older student with special needs and contains over 2690 high-use words and 237 survival words and phrases. A section at the back includes sound-alike words and sentences, abbreviations, states and their postal abbreviations, months, days and numbers.

Reading magic library. Flodd the bad guy (1992-94). Macintosh (2 Megs), Apple II (64K), Apple IIGS (512K) or MS-DOS (256K). Cambridge, MA: Tom Snyder Productions Inc.

This software program is interactive and is designed to help elementary students build reading, vocabulary and critical thinking skills.

There are three ways to use *Reading Magic*: the read mode, the write mode and the record mode. The read mode lets students read through a story, directing its path by making decisions along the way at the choice screens. The write mode provides 10 on-line graphics that summarize the story.

Students can type or dictate their own ideas to go along with each graphic, building their own version of the story. The record mode can be used by students to pre-record themselves reading the story for playback later or the whole class can take turns recording.

This software package includes a program disk, backup disk, expanded teacher's guide with art and writing activities, clip art, reproducible activities and lesson plans.

Special writer coach (1989) by Tom Snyder, Bruce Michael Green & T. George Heineman. Cambridge, MA: Tom Snyder Productions Inc. Macintosh computer disk. ISBN 1-55998-141-5.

Special Writer Coach is a software program which involves the teacher and elementary school students in customizing the process of getting a story down on paper. This program assumes the user has a basic knowledge of how to use the Macintosh. The program breaks the writing process into small parts. Stage 1 deals with composing (the student dictates a story to the teacher who types it into the computer). In Stage 2, the teacher customizes the program by setting the appropriate coaching parameters for the student. In Stage 3, the student types his or her story as coached by the *Special Writer Coach* program.

Spelling strategies you can teach (1990) by Mary Tarasoff. Victoria, BC: M. V. Egan Publishing. ISBN 1-89511-00-5.

This book describes a model of the spelling process that provides a conceptual framework to help elementary teachers understand:

- how students learn to spell
- the role of the teacher
- how to teach spelling strategies
- what to assess
- how to evaluate progress
- how to integrate spelling into language activities.

The appendices include a list of words used to teach phonetic strategies and some useful rules for spelling multisyllabic words.

Storybuilding: a guide to structuring oral narratives (1990) by Peg Hutson-Nechkash. Eau Claire, WI: Thinking Publications. ISBN 0-930599-63-2.

Storybuilding helps elementary school students retell events and create stories. It documents pre- and post-performance on narrative tasks, increases awareness of the elements basic to narrations, and takes the student's knowledge of story elements and applies it to the production of narrations. Students also learn to evaluate narratives of others by determining which story elements are present and which are absent. Students learn to transfer oral narrative skills to other places and to written language. Many intervention activities and assessment forms may be duplicated.

Target: spelling series (1991) by Margaret Scarborough, Mary F. Brigham & Teresa A. Miller. Austin, TX: Steck-Vaughn Company.

Titles: 180, 360, 540, 780, 1020, 1260

This program consists of six workbooks to be used by students in Grades 2-10. The intent of the series is to acquaint students with the correct spelling and word usage necessary for effective oral and written communication. The titles of the books are derived from the number of spelling words students will master as they complete each book.

Each book is organized into 30 weeks of lessons, with four worksheets per lesson. Cloze paragraph exercises help students focus on significant details of the word list while reinforcing reading skills. The teacher's editions include progress graphs, study sheets and review lessons in blackline master format. There is a student consumable workbook and teacher's edition for each level.

Walter the waltzing worm: songs to enhance the movement of vocabulary of young children (1982) by Hap Palmer. Baldwin, NY: Educational Activities, Inc. 1 book, 1 cassette.

Taking advantage of primary students' enjoyment of movement activities, these 12 songs increase vocabulary and basic movement skills. The vocabulary consists of

words from five areas: body parts, actions, space, qualities and relationships. All songs on the cassette require students to use their bodies in active participation. The intent is that the songs supplement and add variety to existing movement programs.

WiggleWorks: scholastic beginning literacy system (1994). Richmond Hill, ON: Scholastic Canada Ltd. Available in print as well as Macintosh CD-ROM and floppy disk (requires Macintosh system 7.0 or higher and microphone, speakers and printer are recommended).

WiggleWorks books are grouped into three stages (A, B, C) with 24 books per stage. Within each stage the books are arranged according to three levels of difficulty. Students can start at any level and progress through the levels at their own pace. Each of the 72 *WiggleWorks* books comes with:

- a six-page teaching plan which follows a lesson from previewing the book, to reading, writing, phonics and language instructions

Wiggleworks assessment material includes:

- *Benchmark Books* to help teachers decide at which level to start students
- the *Assessment Guide* which provides ways to analyze students' reading strategies, identify learning outcomes, and how to use "book read" charts and parent conference sheets.

Each *WiggleWorks* book is available on an interactive Macintosh disk or CD-ROM with built-in instructional support.

The Wonders of science (1990). Austin, TX: Steck-Vaughn Company.

Earth and beyond
Human body
Land animals
Matter, motion and machines
Plant life
Water life

There are six workbooks, accompanied by teacher's editions, on individual topics which complement the science curriculum for Grades 7-12. Brief lessons sustain interest and enable students to find information quickly. Photos, diagrams, charts and

illustrations clarify scientific concepts. Vocabulary words highlighted in selections are defined and cross-referenced for better comprehension and easy identification. Reviews and tests provide experience in standardized formats. Straightforward instructions and exercises allow flexibility in classroom and independent use. Lessons are reinforced through exercises, unit reviews and tests, puzzles and a final mastery test.

Alberta Education

Awareness series (1995) by the Special Education Branch. Order from the Learning Resources Distributing Centre, Order #295578-01.

This series of 15 information brochures helps teachers, students and parents handle extraordinary learning and medical conditions in the classroom. Each brochure includes a brief definition, identifiable symptoms, general classroom management strategies and contacts. The topics include:

- allergies
- asthma
- autism
- cerebral palsy
- deafness and hearing loss
- diabetes
- Down's syndrome
- emotional disturbances
- epilepsy
- fetal alcohol syndrome
- learning disabilities
- muscular dystrophy
- spina bifida
- Tourette syndrome
- visual impairments.

Enhancing social skills in the classroom (E.C.S. to grade 3) (1991) by the Special Education Branch. ISBN 0-7732-0435-0. Order from the Learning Resources Distributing Centre, Order #161563-01 (*Instructor's Manual*) or Order #161571-01 (*Participant's Handouts*).

The instructor's manual contains 10, two-hour training sessions intended for regular

classroom teachers of students in Grades 1-3. The training sessions present an approach to enhancing social skills and cover topics including:

- social skills in school
- good and poor social skills
- factors contributing to positive behaviour
- prevention of negative behaviour
- assessment of social skills development
- targeting good social skills
- tracking social skills
- integration strategies
- problem-solving approach to behaviour management
- social skills instruction.

The sessions are intended to be modified and used flexibly. The participant's handouts are designed to accompany the manual.

Guide to education for students with special needs (annual) by the Special Education Branch. ISBN 0-7732-1763-0. Order from the Special Education Branch at no charge.

This guide sets out Alberta Education's requirements and expectations for the development and delivery of programs for students with special needs.

Individualized program plans — Book 3 of the Programming for students with special needs series (1995) by the Special Education Branch. ISBN 0-7732-1838-6. Order from the Learning Resources Distributing Centre, Order #292871-01.

The guide describes a process for IPP development and includes strategies for involving parents. It provides information on writing long-term goals and short-term objectives. Forms and checklists are included to assist in planning. Transition planning is also addressed, along with case studies and samples of completed IPPs.

Partners during changing times (1996) by the Special Education Branch. ISBN 0-7732-1835-1. Order from the Special Education Branch at no charge.

This information booklet for parents of children with special needs provides a

general overview of how parents can be involved in the education of their children. It outlines the roles and responsibilities of parents, the school's rights and responsibilities, relevant legal parameters and funding sources to support the delivery of special education programs and services.

Teacher alert system: a guide for teacher managed assessment of students who are "at risk" of school failure (1991) by the Special Education Branch.
ISBN 0-7732-0476-8.
Order from the Learning Resources Distributing Centre, Order #162016-01.

Teacher Alert System (TAS) helps teachers identify students who might be at risk of school failure. The behavioural index lists behaviours of concern and guides teachers to indicators and checklists in the following areas: family and welfare issues (abuse and neglect, sexual abuse), school and classroom environment (teacher stressors, school security), physical/sensory disorders (allergy, blood sugar, eating, hearing, vision, seizure), developmental and learning disorders (learning disabilities, ADD/AD/HD, language learning, severe communication), and temperament and behaviour disorders (learning styles, anxiety, avoidant behaviours, conduct problems, potential dropouts, risk of suicide).

Teacher intervention practices (TIPS): a companion document to the Teacher Alert System (1992) by the Special Education Branch.
ISBN 0-7732-0720-1.
Order from the Learning Resources Distributing Centre, Order #162024-01.

Teacher Intervention Practices (TIPS), a companion to *TAS*, helps teachers determine what type of intervention framework is effective and specific tactics for intervention. The intervention framework includes a management process and ways to develop community support. The behavioural index guides teachers to specific issues related to family and welfare, school and classroom environment, physical/sensory disorders, developmental and learning disorders, and temperament and behaviour disorders. Each issue includes a list of indicators, criteria for action, possible

reasons for the behaviour, prevention, early intervention and sources of support.

Teaching for student differences — Book 1 of the Programming for students with special needs series (1995) by the Special Education Branch.
ISBN 0-7732-1834-3.
Order from the Learning Resources Distributing Centre, Order #292855-01.

Highlights strategies for differentiating instruction within the regular classroom for students who may be experiencing learning or behavioural difficulties, or who may be gifted and talented. It also describes a process for modifying the regular program and includes forms to assist in teacher planning.

Teaching thinking: enhancing learning: a resource book for schools: ECS to Grade 12 (1990) by the Curriculum Branch.
ISBN 1-55006-227-1.
Order from the Learning Resources Distributing Centre, Order #161521-01.

This resource explores ways to cultivate thinking in schools. It helps teachers focus on teaching for thinking, teaching of thinking and teaching about thinking. Teaching thinking skills is an integral part of the school curricula so throughout the resource the thinking skills required for a particular content area are addressed in a meaningful context. Chapter I offers a rationale for teaching thinking skills and defines the skillful thinker. Chapter II outlines roles of teachers, administrators and students in developing a climate where thinking-skill development can flourish. Chapter III suggests how an effective approach to teaching thinking can be implemented in a school community. The major emphasis of Chapter IV is specific student activities. Chapter V offers suggestions for evaluating thinking. The appendices are reproducible.

Understanding students' needs: a guide for implementing assessment procedures for students encountering educational challenges (1993) by the Special Education Branch. ISBN 0-7732-1131-4.
Order from the Learning Resources Distributing Centre, Order #261909-01.

This manual helps administrators, specialists and teachers better understand the process of assessment in order to develop and implement effective programs for students with special needs. It guides readers through assessment issues and helps them develop programs and policies specific to their needs.

Attention-deficit/ Hyperactivity Disorder

ABC's for success: attention deficit disorder (1995) by Dwaine & Dianna Souveny. Red Deer, AB: Children's Services Centre. Order from the Learning Resources Distributing Centre, Order #294497-01.

ABC's for success is an approach that promotes positive behaviours in elementary students with attention deficit disorder.

- A — adaptations maximize the opportunity for students to achieve success
- B — beliefs build upon the student's strengths and current abilities
- C — consequences teach the student the desired behaviours and motivate the student to display them at appropriate times
- S — self-control develops the student's skills and desire to independently display the behaviour.

This resource also includes strategies for parents.

ADD hyperactivity handbook for schools (1992) by Harvey C. Parker. FL: Impact Publications. Order from the Learning Resources Distributing Centre, Order #294504-01.

This handbook provides educators with the tools needed to identify, evaluate and teach students with ADD. The first six chapters cover a description and causes of ADD, methods of assessment and a review of medical treatments. The remaining seven chapters contain useful teaching strategies including providing accommodations in the classroom, step-by-step information to implement helpful classroom interventions, how to handle common behaviour problems of ADD students, and information about

individualized program plans. Reproducible student worksheets are also included.

Answers to ADD, the school success tool kit (video) (1992) by John F. Taylor. OR: Sun Media. Order from the Learning Resources Distributing Centre, Order #292136-01.

This video has strategies for teachers and parents. The categories are: forming a team, staying on task, taking better notes and staying organized, reducing fidgets/squirmies, maintaining an I-can-do-it feeling, winning the homework war and using subject area strategies.

Attention deficit disorder: a concise source of information for parents and teachers (1994) (second edition) by H. Moghadam & Joel Fagan. Calgary, AB: Detselig Enterprises Ltd. ISBN: 1-55059-082-0

The second edition of this Canadian resource explores the questions and concerns of teachers and parents about attention deficit disorder. This book provides a detailed presentation of the current knowledge on attention deficit disorder. It offers readers a basic understanding of the disorder and a reference point for making informed decisions on available treatments.

The chapters include:

- a brief historical review of ADD
- possible causes
- diagnosis
- management through drug therapy
- behaviour management
- parental and family issues
- classroom management
- ADD in adolescence.

Educator's in-service program on attention deficit disorders (1992) by Mary Fowler. FL: Children and Adults with ADD. Order from the Learning Resources Distributing Centre, Order #300997-01.

This resource is an inservice package intended for use with educators and other professionals involved with the treatment and/or education of students with attention deficit disorder. The package includes an inservice script accompanied by colour transparencies and a copy of the *CH.A.D.D.*

Educators Manual. The *Educators Manual* provides an in-depth look at ADD, includes a definition of ADD and sections on understanding educational implications, identification and assessment protocols, intervention practices and problem-solving techniques.

How to reach and teach ADD/ADHD children: practical techniques, strategies, and interventions for helping children with attention problems and hyperactivity (1993) by Sandra F. Rief. West Nyack, NY: Center for Applied Research in Education. Order from the Learning Resources Distributing Centre, Order # 294538-01.

This resource contains practical strategies for helping students with ADD/AD/HD. It is organized into 30 comprehensive sections on topics such as:

- What is ADD/AD/HD?
- Comprehensive treatment program for ADD/AD/HD
- Preventing behavioural problems in the classroom
- Preventing problems during transitions
- Attention: getting it, focusing it, keeping it
- How to teach students organization and study skills
- Language arts, written language and mathematics strategies
- Advantages of cooperative learning
- Learning styles
- Communication with parents and mutual support
- What about kindergarten?
- Challenge of middle and junior high school
- Exemplary model programs.

Communication Domain

CORE reading and vocabulary development (IBM or Mac version) (1985) by Priscilla Hamilton & Barbara Hombs. Freeport, NY: Educational Activities Inc.

Core Reading and Vocabulary Development is a software program designed for use with older students who are reading at beginning levels but it can also be used with primary

students. The program is interactive and provides guided drill and practice.

The set consists of five binders and computer disks which contain 18 lessons. Each lesson offers the following nine activities, each accessible from a main lesson menu:

- word list — at the beginning of each lesson to see if the student is ready to work with that lesson's story
- reading — the shorter selections provide leisure-type readings, the longer selections encourage sustained silent reading and provide for the development of skimming and scanning skills
- phrase reading — trains the eye in correct, smooth and fluent eye movements during the reading process
- fill-in — use cloze-type activities in which students search for meaning using contextual clues
- questions — ensure that students have understood the meaning of the reading selections and not simply recalled words
- practise writing — develops memory of details and familiarity with spelling
- see, say and spell — provides a model for a learn-to-spell technique that students can then learn to use on their own
- spell it right — tests students' learning by having them choose from among three possible spellings to find the correct one
- writing — provides students with the opportunity to demonstrate mastery of the details of the story and of the spellings of the words from the story.

The software management system keeps track of students' progress by retaining the latest points score and the number of attempts for each activity.

Figurative language: a comprehensive program (1992) by Kathleen A. Gorman-Gard. Eau Claire, WI: Thinking Publications. ISBN 0-930599-72-1.

This program is effective for pre-teens and teens who have not mastered figurative language. This resource begins with teaching multiple-meaning words, followed by other figurative language forms including metaphors and similes, idioms, proverbs,

jokes and riddles, clichés and slang. Each chapter defines the language form, provides a review of the literature and includes numerous activities to be used with students. The activity pages are reproducible for educational purposes only.

Follow me! listen-and-do-activities (1986) by Grace W. Frank. East Moline, IL: Linguisystems Inc.
ISBN 1-55999-039-2.

This resource was developed to teach students in ECS to Grade 3 basic concepts and vocabulary and improve their ability to follow oral directions. The lessons are grouped according to one of the following purposes: basic direction terms, position/location, association, exclusion, sequence, word meanings and listening. The level of difficulty is indicated and each lesson is accompanied by a reproducible worksheet.

Follow me! 2: listening activities to teach classroom language and concepts (1991) by Grace W. Frank. East Moline, IL: Linguisystems, Inc.
ISBN 1-55999-183-6.

This resource was developed to help teach students in Grades 2-5 basic concepts and vocabulary in four areas: language arts, mathematics, social studies and science. The lessons are grouped according to subject and the difficulty level of each lesson is indicated by grade. Each lesson is accompanied by a reproducible worksheet.

Listening for basic concepts all year 'round
Listening for language all year 'round
Listening for vocabulary all year 'round

(Brennan Books series) (1990) by Brenda Brumbaugh & Nan Thompson-Trenta. East Moline, IL: Linguisystems, Inc.

Each book for students in ECS-Grade 4 features: themed lessons for September through May, content listening for comprehension skills, engaging stories for contextual learning, hands-on language activities to reinforce skills, home lessons for family involvement and artwork starring Brennan Bear.

Listening for basic concepts all year 'round teaches 86 spatial, quantity and attribute concepts. Includes blackline masters.
ISBN 1-55999-108-9.

Listening for language all year 'round reinforces word relationships with written and oral practice with synonyms, antonyms, idioms and comparisons.
ISBN 1-55999-250-6

Listening for vocabulary all year 'round teaches vocabulary through the themes of school, sports and holidays with 180 vocabulary pictures. Includes blackline masters.
ISBN 1-55999-225-5.

Vocabulary maps: strategies for developing word meaning (1993) by Jean Hamersky. Eau Claire, WI: Thinking Publications.
ISBN 0-930599-81-0.

Vocabulary Maps uses a strategy-oriented approach to facilitate vocabulary growth. This approach focuses on the underlying thinking and organization necessary for learning, retaining, integrating and using new words. Students learn to analyze their own precision and flexibility of vocabulary use, and to judge the effectiveness of their communication.

Vocabulary Maps teaches five organizational strategies:

- attribute web
- semantic continuum
- associated words format
- venn diagram
- multiple-meaning tree.

Vocabulary Maps can be used with students in Grades 5-12 who have language disorders, mild cognitive disabilities or learning disabilities, or with students in general education programs. This resource includes reproducible strategy formats, student record forms, examples of content-area vocabulary by grade level and a wall poster displaying all five organizational strategies.

The WORD kit, elementary: a program to build expressive vocabulary and semantic skills (1988) by Rosemary Huisingsh, Mark Barrett et al. East Moline, IL: Linguistics, Inc.

The WORD Kit consists of: *The WORD Book*, *WORD Pictures* and *WORD Game*. The kit is designed to teach students in Grades 1-8 about words and their relationships.

The WORD Book includes 260 pages of reproducible worksheets. *WORD Book* activities include stories, matching, crossword puzzles, multiple choice questions, sentence completion and riddles. The activities are arranged by order of difficulty.

The WORD Pictures consist of 300 picture cards, 50 for each of the following six sections: associations, synonyms, semantic absurdities, antonyms, definitions and multiple definitions. The tasks in the pictures are arranged by order of difficulty.

The WORD Game is designed to increase students' vocabulary and semantic skills.

Fetal Alcohol Syndrome/ Possible Prenatal Alcohol- related Effects

Children of prenatal substance abuse (1993) by Shirley N. Sparks. San Diego, CA: Singular Publishing Group.
ISBN 1-56593-071-1.

This resource presents the answers to questions that arise when working with students who were exposed prenatally to drugs.

The author provides a thorough description of the short- and long-term effects of prenatal exposure to cocaine and alcohol on cognitive and neuromotor development. Practical intervention strategies tailored to the specific needs of cocaine-exposed and/or alcohol-exposed students are presented in a straightforward manner. Emphasis is placed on early intervention with the family as the most effective treatment. In addition, clinicians and teachers will learn about their role in prevention, referrals to

other service programs and sources for educational material.

Fantastic antone succeeds: experiences in educating children with Fetal Alcohol Syndrome (1993), edited by Judith Kleinfeld & Siobhan Wescott. Fairbanks, AK: University of Alaska Press.
ISBN 0-912006-65-X.

This book is written for those who work with alcohol-affected students and their families. The stories delineate what educators call the "wisdom of practice" — the lessons and inventions of experience. It also includes lists of important resources, organizations to contact and descriptions of effective classroom practices for teachers.

Reaching out to children with FAS/FAE: a handbook for teachers, counselors, and parents who work with children affected by Fetal Alcohol Syndrome and Fetal Alcohol Effects (1994) by Diane Davis. West Nyack, NY: Center for Applied Research in Education.
ISBN: 0-87628-857-3

This resource offers information and techniques which can be expanded or modified to fit the needs of teachers and families with children with FAS/FAE. Section I includes the identification and diagnosis, the causes, parenting issues and teaching issues. Section II deals with specific, concrete techniques for working with children, adolescents and adults with FAS/FAE. Some techniques include dealing with anger, ways of releasing energy, building self-esteem, behaviour modification techniques, basic living skills, social skills, and finding jobs. An extensive resource list in Section III includes recommended teaching and training materials for helping students with FAS/FAE.

Information Processing Domain

Adaptations for students with learning difficulties to accompany a show of hands: developing legible handwriting (1993) by Rita Humphreys & Marilyn Collins. Calgary, AB: Calgary Learning Centre.

The adaptations in this resource were piloted by students with learning disabilities aged nine to 12. They participated in a study designed to examine their cursive handwriting awareness and performance. Four sample activities: trail writing, decorative note paper, tongue tanglers and writing postcards are presented along with the recommended adaptations. The six categories of adaptations are designed to increase motivation, teach prerequisite skills and strategies, allow for self-selection, link manuscript and cursive, reduce complexity, and provide guided practice.

Complete learning disabilities handbook: ready-to-use techniques for teaching learning handicapped students (1989) by Joan M. Harwell. West Nyack, NY: Center for Applied Research in Education, Inc. ISBN 0-87628-239-7.

Designed for elementary and secondary educators, this handbook provides practical suggestions and ready-to-use materials for meeting the needs of students with learning disabilities. It includes tools for diagnosis and assessment, strategies for classroom management, solutions to common problems, guidelines for intervention in specific subject areas and techniques for helping older students.

Give them a hand: developing legible handwriting: an activity book for primary grades (1989) by Emma Plattor & Wilma McQueen. Calgary, AB: RPM Press. ISBN 0-921858-00.

This resource contains over 100 activities designed to meet the handwriting needs of early childhood and elementary students. The major objectives of the handwriting activities are legibility and fluency. Each activity is based on one of the following lessons:

- presentation — introducing specific handwriting concepts and skills
- reinforcement — reviewing, practising, and combining previously taught concepts and skills
- integration — applying handwriting concepts and skills in a variety of curriculum areas

- diagnosis — identifying handwriting strengths and needs, reteaching where appropriate
- enrichment — extending and enhancing concepts and skills.

The resource contains reproducible materials to accompany the handwriting activities.

Help series (1988) by Andrea M. Lazzari & Patricia M. Peters. East Moline, IL: Linguistics, Inc. ISBN 01-55999-911-XC5 (series).

The *Help Series* provides flexible activities to meet a variety of learning needs for students in Grades 1-12, including progressive lessons, IPP goals for each activity, answer keys and extension activities.

Help 1 teaches auditory discrimination, question comprehension, association and auditory memory. ISBN 1-55999-045-7K5P.

Help 2 teaches specific word finding, categorization, "wh"-questions and grammar. ISBN 01-55999-046-5K5P.

Help 3 teaches concepts, paraphrasing, critical thinking and social language. ISBN 01-55999-047-3K5P.

Help 4 discusses defining and describing, written language, talking about language, work play and humour. ISBN 01-55999-048-1K5P.

Help 5 teaches processing information, comparing and contrasting, mathematics language, and self-expression. ISBN 01-55999-181-XK5P.

Learning for success: skills and strategies for Canadian students (second edition) (1994) by Joan Fleet, Fiona Goodchild & Richard Zajchowski. Toronto, ON: Harcourt, Brace and Company Canada Ltd. ISBN 0-7747-3281-4.

This book was written for senior high school students who are developing learning strategies to use in future employment and/or higher education settings. Students will develop greater self-awareness of learning strengths and weaknesses which can lead to enhancement of present skills and to new

and more effective approaches to learning tasks.

Prescissor skills (1990) by Marsha Lee Dunn.
Tucson, AZ: Communication Skill Builders.
ISBN 0-88450-967-2.

The author discusses the developmental stages of scissors use and explains how to assess each student's skill level so that instruction can be targeted to the current level of performance. The resource includes techniques, adaptations and descriptions of games and activities in which students can practise scissors skills. Guidelines are given for designing an individual pre-scissors program for each student. Includes reproducible materials.

Prewriting skills (1990) by Marsha Lee Dunn.
Tucson, AZ: Communication Skill Builders.
ISBN 0-88450-822-6.

The author discusses the developmental stages of writing and explains how to assess each student's skill level so that instruction can be targeted to the current level of performance. The resource includes techniques, adaptations and descriptions of some activities in which students can practise pre-writing skills. Guidelines are given for designing an individual pre-writing program for each student.

Metacognitive Domain

Learning to learn: strengthening study skills and brain power (1990) by Gloria Frender.
Nashville, TN: Incentive Publications Inc.
ISBN 0-86530-141-7

This resource contains practical hints, methods, tips, procedures and tools to help students succeed in school. The step-by-step procedures include learning styles, time management and organization skills, reading skills, memory, test-taking skills, thinking skills and problem-solving strategies. Reproduction of the worksheets is permitted.

Skills for school success (Book 3, 4, 5 and 6) (1991) by Anita Archer & Mary Gleason.
North Billerica, CA: Curriculum Associates, Inc.

This series of books integrates language arts and content curriculum areas for

students in Grades 3-6. Students learn how to:

- organize notebooks
- maintain calendars of assignments
- complete well-organized papers
- follow directions
- take notes from lectures and written material
- study for and take tests
- use a table of contents, glossary and index
- develop skills in reading and interpreting graphs and tables
- alphabetize and interpret dictionary and encyclopedia entries.

The teacher guides offer introductory lessons and review activities with over 50 reproducible pages of checklists, reference sheets, parent letters, review games, award certificates and class posters. The consumable student books include work pages for teacher-directed lessons.

The Study skills handbook (1993) by Jay Amberg.
Glenview, IL: Goodyear Books/Scott, Foresman & Company.
ISBN: 0-673-36098-9

For students in Grades 6-10, this handbook provides tips and activities to help them with their study skills. Chapters deal with skill strategies for managing time, improving memory, reading textbooks, learning to listen, taking notes, building vocabulary, taking objective tests and writing essays. The book can be used individually or with groups requiring assistance.

Study skills strategies: accelerate your learning (revised edition) (1994) by Uelaine A. Lengefeld.
Menlo Park, CA: Crisp Publications Inc.
ISBN: 1-56052-260-7

This book is intended to help students in Grades 7-12 learn to:

- analyze current study habits
- manage time
- take clear meaningful classroom notes and learn to study from them
- develop power reading skills such as SQ3R³
- acquire good methods to memorize material
- develop study skills for mathematics

- prepare for and take exams
- write better essays.

These strategies can be used individually or as a unit of classroom instruction.

Survival skills for students: a workbook of learning strategies (1993) by Dr. James L. Walker. Toronto, ON: Gage Educational Publishing Company.
ISBN: 0-7715-5117-7

This workbook of strategies provides students in Grades 7-9 with a step-by-step guide for learning how to study effectively. The chapters deal with time management, reading skills, memory skills, listening, note-taking, solving problems in mathematics and science, and improving performance on tests. Each strategy is preceded by a short self-assessment of students' unique learning needs and interests. The intent is to help students devote efforts to learning strategies which are most helpful to the students' individual learning styles and present study habits.

Teaching for learning success: practical strategies and materials for everyday use (1994) by Gloria Frender. Nashville, TN: Incentive Publications.
ISBN: 0-86530-280-4

This resource is a collection of ideas and ready-to-use forms. The focus is on practical and successful skills, tools and materials for immediate use in classrooms and homes. It includes materials for cooperative learning, independent study, teaching students with varied learning styles and ways to encourage the school-home connection. The practical pages are reproducible for use as student handouts, transparencies, parent letters, planning guides, bulletin board ideas and teacher aids.

Test ready mathematics: a quick-study-program: books 1 to 8 — student books and teacher guides (1989) (second edition) by Brian Enright & Susan Miller. North Billerica: Curriculum Associates, Inc.

This series of books is an eight-level review program for practising test-taking skills. The series reviews key mathematics concepts,

provides problem-solving practice, develops test-taking skills and helps improve mathematics test scores. Books 1-8 correspond to grade levels; e.g., Book 1 is for Grade 1 students, etc. The test books for Grades 3-8 are designed to be used with students in preparation for standardized achievement tests.

Think aloud: increasing social and cognitive skills — a problem-solving program for children (1981) by Bonnie W. Camp & Mary Ann S. Bash. Champagne IL: Research Press.
Primary level: ISBN 0-87822-254-5.
Grades 1-2: ISBN 0-87822-240-5.

The think aloud program is a training process to be used for cognitive and social problem solving using verbal mediation which is the process of talking to oneself to guide problem solving. The resources include specific directions to teachers on how to apply the program. Each lesson includes an introduction, teaching strategies, objectives and materials required. The lessons provide teaching strategies to develop skills in observing, recalling, comparing/contrasting, ordering, grouping, listening, identifying emotions, alternative thinking, consequential thinking, evaluative thinking and making choices.

Thinking things: thinking skills for ages 4-8 years (Mac software) (1993). Redmond, WA: Edmark Corporation.

In this software program, colourful characters and non-language-dependent learning provide a comfortable environment where students explore their creativity, take intelligent risks and learn to tackle new situations confidently. They can build thinking skills in mathematics, science, reading, music and art. All instructions are graphical or spoken, so even pre-readers can discover and explore on their own.

Transfer activities: thinking skill vocabulary development (1987) by Patty Mayo & Nancy Gajewski. Eau Claire, WI: Thinking Publications. ISBN 0-930599-13-6.

Transfer Activities provides teachers with strategies to help adolescents solve problems, compare ideas, avoid mistakes and maintain self-control. The resource

focuses on abilities such as thinking skill development, impulsivity control, study skills and receptive/expressive language development. It is divided into 25 units with each unit composed of a section for educators and a section containing materials for instruction. The section for educators includes vocabulary terms and definitions, suggested introduction, activity pages, bridging ideas and additional activities. The section of material for instruction includes a vocabulary page, other worksheets and diagrams.

Transition strategies for persons with learning disabilities (1994) by Craig Michaels. San Diego, CA: Singular Publishing Group, Inc. ISBN 1-56593-165-3.

This resource focuses on the critical issues facing students with learning disabilities when making transitions from secondary education to employment, post-secondary education or independent living. It discusses social integration and full participation in adult society. The book describes transition strategies and model programs in detail and covers the problems that hinder successful interdisciplinary communication, coordination of services and goal setting.

Social/Adaptive Domain

CASE study: communication and self-esteem (1992) by M. Ann Marquis & Elaine Addy-Trout. Eau Claire, WI: Thinking Publications. ISBN 0-930599-75-6.

This resource uses self-esteem topics to teach effective communication skills to students in Grades 6-12. This resource provides 10 lessons:

- developing a group concept
- communicating with others
- understanding oneself
- exploring self-concept
- defining self-esteem
- decision making and problem solving
- analyzing family issues
- social values and myths
- differences and similarities among people
- examining our role in the world.

Activities are adaptable to small groups, large classrooms or one-to-one interactions. Lessons that include potentially sensitive topics are clearly marked.

Decisions, decisions. The environment: the science and politics of protecting our planet (1991). Available for Macintosh (1 Meg), Apple II (64K) or MS-DOS (256K). Cambridge, MA: Tom Snyder Productions.

This software helps students in Grades 5-10 evaluate and choose courses of action. Students learn to set priorities, think critically about what they read, make connections and anticipate consequences. This program motivates students to make sense of what they read. It teaches decision-making skills that transfer to everyday life.

Enhancing social skills in the classroom (E.C.S. to grade 3) (1991) by the Special Education Branch. See page LD.290 for annotation.

How difficult can this be? Understanding learning disabilities: The F.A.T. city workshop (1989). Etobicoke, ON: PBS and Visual Educational Centre. Order from ACCESS, Order #3755-01.

This 70 minute video allows the viewer to look at the world through the eyes of students with learning disabilities. It features a unique workshop attended by parents, educators, psychologists and social workers. They participate in a series of classroom activities which cause frustration, anxiety and tension.

Learning the skills of peacemaking: a K-6 activity guide on resolving conflict, communicating, cooperating (revised and updated edition) (1995) by Naomi Drew. Torrance, CA: Jalmar Press. ISBN 1-880396-42-4.

This program teaches the skills of peacemaking by focusing on specific skills as well as general problem-solving skills. The major concepts are: accepting self and others, communicating effectively, resolving conflicts and understanding intercultural differences. The peacemaking skills are presented in three stages. Stage I, Peace

Begins with Me deals with resolving conflict, reflective listening and brainstorming. Stage II, Integrating Peacemaking into Our Lives deals with making ethical choices and human differences. Stage III, Exploring of Roots and Interconnectedness deals with the similarities and differences in customs, attitudes and policies of other nations. Throughout the resource different methods, such as playacting, creative writing, story reading, music, the arts and classroom discussions are used to teach peacemaking skills.

Self-esteem: a classroom affair: 101 ways to help children like themselves by Michele & Craig Borba. Glenview, IL: Scott Foresman & Company
Volume 1: ISBN 0-86683-612-8; 1978
Volume 2: ISBN 0-86683-675-6; 1982

These resources include activities to help teachers create an environment in which students in elementary schools learn to like themselves. The activities are designed to help students gain confidence in their abilities to communicate both verbally and in written form. The activities include the list of materials and equipment required. Many activity worksheets are reproducible

Skillstreaming the adolescent: a structured learning approach to teaching prosocial skills (1980) by Arnold P. Goldstein, Robert P. Sprafkin & N. Jane Gershaw. Champaign, IL: Research Press.
ISBN: 0-87822-205-7
Order from the Learning Resources Distributing Centre, Order #292520-01.

This book's major focus is social skill deficiency and its remediation through a skill training approach called structured learning. Structured learning is designed to teach adolescents social skills, planning skills, skills for dealing with feelings, skill alternatives to aggression and skills for responding effectively to stress. Screening and implementation procedures, prosocial skills and their behavioural steps, and lesson plans are included.

Skillstreaming the elementary school child: a guide for teaching prosocial skills; guidebook; program forms booklet (1984) by Ellen McGinnis & Arnold P. Goldstein. Champaign, IL: Research Press. Order from the Learning Resources Distributing Centre, Order #153817-01.

This guidebook provides a detailed description of the components of structured learning and offers screening procedures to help identify students who are deficient in prosocial skills and their specific skill strengths and weaknesses. It presents a step-by-step guide for the implementation of structured learning for students in Grades 1-6. The 60 skills fall under the headings of classroom survival, friendship making, dealing with feelings, alternatives to aggression and dealing with stress. A full listing of prosocial skills and their behavioural steps, along with lesson plans and suggested application situations are included.

The program forms booklet includes a collection of 28 program forms, teacher and student checklists, record forms, progress charts, report outlines, contract forms; and awards for friendship, feelings, avoiding aggression and reducing stress.

Social star: general interaction skills (Book 1) (1993) by Nancy Gajewski, Polly Hirn & Patty Mayo. Eau Claire, WI: Thinking Publications.
ISBN 0-930599-79-9.

This resource teaches social communication skills to students in Grades 2-5 using a cognitive planning strategy. It emphasizes general interaction skills, peer interaction, problem solving/dealing with conflict, emotions and classroom work habits. Each unit within the book includes a goal statement, educator information, a series of lessons for teaching a social skill, lists of related activities and literature, and suggested ways to integrate social skill instruction throughout the day.

Book 1 focuses on eye contact, volume, tone of voice, facial expression, posture, personal space, hygiene, body talk, manners, listening basics, staying on topic, conversations, interrupting, right time and place, and being formal or casual.

Social star: peer interaction skills (Book 2) (1994) by Nancy Gajewski, Polly Hirn & Patty Mayo. Eau Claire, WI: Thinking Publications. ISBN 0-930599-91-8.

Social Star: Peer Interaction Skills (Book 2) builds on the skills taught in *Social Star: General Interaction Skills* (Book 1) and continues to use a cognitive planning strategy. Book 2 is for students in Grades 2-5 and provides these additional units: optimism, playing cooperatively, respecting differences, being a friend, giving and receiving compliments, building a positive reputation, dealing with teasing, collaborative skills, getting into a group, participating, staying on task, disagreeing politely. Book 1 and Book 2 can be used independently.

SSS: social skill strategies: a curriculum for adolescents (Books A and B) (1989) by Nancy Gajewski & Patty Mayo. Eau Claire, WI: Thinking Publications. ISBN 0-930599-51-9 (Book A). ISBN 0-930599-52-7 (Book B).

These resources describe the procedure for establishing a social skills course and a format for structuring a class period. They include a comprehensive description of a seven-step procedure for teaching each social communication skills unit. This program provides suggestions for promoting transfer and generalization of the social skills mastered in a classroom situation.

The communication skills, to be used with students in Grades 5-12, are divided into five categories: introductory, general interaction, peer interaction, management skills and emotional expression.

Each unit within the categories focuses on a different social skill and includes structured activities which teach students about the skills and provide opportunities for practice. The units incorporate a wide variety of instructional techniques; e.g., group discussion, games, role plays, visualizations, cartoons, group projects and guided practice pages.

Teacher's encyclopedia of behavior management: 100 problems/500 plans (1995) by Randall Sprick & Lisa Howard. Longmont, CO: Sopris West. ISBN 1-57035-031-0.

This reference book contains approximately 100 common classroom problems arranged alphabetically by title. Each problem includes general considerations, model plans and suggested steps for developing and implementing a plan. The appendices deal with three topics: reinforcing appropriate behaviour, assigning responsibilities or jobs and responding to inappropriate behaviour. An index includes multiple descriptive titles for each problem.

A Teacher's guide to cooperative discipline: how to manage your classroom and promote self-esteem (1989) by Linda Albert. Circles Pines, MN: American Guidance Service Inc. ISBN 0-88671-362-5.

A Teacher's Guide to Cooperative Discipline is a program that shows teachers how to work together with students to make the classroom a pleasant place in which to teach and learn. The sections outline methods for taking corrective action for dealing with attention-seeking, power and revenge, and avoidance-of-failure behaviours. Methods for building self-esteem and taking cooperative action are also included. The appendices include a review chart of the four goals of misbehaviour, a summary chart of interventions for specific behaviours and a chart outlining the building blocks of self-esteem.

Section 7

Publishers' Addresses

ACCESS Network
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Edmonton, AB T6B 2N9
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A.D.D. WareHouse
Suite 102, 300 Northwest 70th Ave.
Plantation, FL 33317 USA
Telephone: (954) 792-8944

American Guidance Service Inc.
Circle Pines, MN USA
Canadian Distributor:
Psycan
P.O. Box 290, Station V
Toronto, ON M6R 3A5
Telephone: 1-800-263-3558

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Plantation, FL 33317 USA
Telephone: (954) 587-3700

Children's Services Centre
#401, 5000 Gaetz Ave.
Red Deer, AB T4N 6C2
Telephone: (403) 340-2606

Communication Skill Builders
Tucson, AZ
Canadian Distributor:
Harcourt Brace and Company Canada Ltd.
55 Horner Ave.
Toronto, ON M8Z 9Z9
Telephone: 1-800-387-7278

Crisp Publications Inc.
Menlo Park, CA USA
Canadian Distributor:
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109 Thomas St.
Oakville, ON L6J 7R4
Telephone: (905) 842-4428

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Incentive Publications Inc.
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Canadian Distributor:
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Kitchener, ON N2G 3W9
Telephone: (519) 895-0330

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Surrey, BC V3V 5A8
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Jalmar Press
Torrance, CA USA
Canadian Distributor:
Marvin Melnyk Associates Ltd.
P.O. Box 200
Queenston, ON L0S 1L0
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Telephone: 1-800-682-0029

Laureate Learning Systems, Inc.
Winooski, VT USA
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St. Albert, AB T8N 3M5
Telephone: (403) 458-0303

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Telephone: (403) 282-2441

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P.O. Box 6275
Victoria, BC V8P 5L5
Telephone: (604) 477-0105

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Waterloo, ON N2V 1V9
Telephone: 1-800-265-3375

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Fairbanks, AK 99775-6240 USA
Telephone: (907) 474-6389

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In Edmonton: (403) 430-8305

Section 8

Annotated Test Inventory

The following annotated test inventory includes the level of training required to administer and interpret the tests. The following levels are taken from *Standards for Psycho-educational Assessment* (Alberta Education, 1994):

- Level A: requires no formal training in testing
- Level B: requires formal training in testing
- Level C: restricted tests requiring professional qualifications.

See page LD.318 for a chart illustrating the standards of competence, level of tests and qualifications.

Achievement Group Administered Tests

The Brigance Diagnostic Comprehensive Inventory of Basic Skills, 1983 (CIBS)

Author: Albert H. Brigance
Publisher: Curriculum Associates Inc.
Canadian Distributor: Curriculum Associates Inc.

Description: Measures attainment of basic academic skills, used for developing IPPs and determining academic placement.

Test Scores: Grade equivalents

Population: ECS to Grade 9

Administration Time: Untimed, varies

Reliability and Validity: Not reported in test manual

Administrative Considerations: Level A, no formal training in testing required.

Canadian Tests of Basic Skills, 1990 (CTBS)

Authors: E. King-Shaw, A.N. Hieronymus and D. Scannell

Publisher: Nelson Canada

Canadian Distributor: Nelson Canada

Description: Three test levels — primary, multilevel and high school. Multiple choice, paper and pencil subtests for vocabulary, reading comprehension, spelling, capitalization, punctuation, usage, visual materials, reference materials, mathematics concepts, mathematics problem solving and mathematics computation.

Test Scores: Grade score equivalents, percentile ranks

Population: ECS to Grade 12

Administration Time: Primary — 235 minutes,

Multilevel — 256 minutes, High school — 160 minutes

Reliability and Validity: Moderate to very good

Administrative Considerations: Level A, no formal training in testing required.

Gates-MacGinitie Reading Tests — Second Canadian Edition, 1992

Authors: W. H. MacGinitie and R. L. MacGinitie

Publisher: Riverside Publishing Co.

Canadian Distributor: Nelson Canada

Description: Measures reading achievement in terms of vocabulary and comprehension.

Test Scores: Percentile ranks, grade equivalent scores

Population: ECS to Grade 12

Administration Time: 55–105 minutes

depending on grade level of students

Reliability and Validity: Very good

Administrative Considerations: Level A, no formal training in testing required.

Stanford Diagnostic Math Test — Third Edition, 1984

Authors: L. S. Beatty, R. Madden, E. F. Gardner and B. Karlsen

Publisher: The Psychological Corporation

Canadian Distributors: The Testing Materials Resource Book, The Psychological Corporation

Description: Assesses number systems, numeration, computation and applications; divided into four levels with two alternate forms.

Test Scores: Percentile ranks, stanines, scaled scores, grade equivalents and progress indicators

Population: Grades 1.5–12.8

Administration Time: 85–100 minutes

Reliability and Validity: Good to very good

Administrative Considerations: Level A, no formal training in testing required.

Stanford Diagnostic Reading Test — Third Edition, 1984

Authors: B. Karlsen and E. F. Gardner

Publisher: The Psychological Corporation

Canadian Distributors: The Testing Materials Resource Book, The Psychological Corporation

Description: Measures reading comprehension, reading vocabulary, reading decoding and reading rate. Divided into four levels with two equivalent forms.

Test Scores: Percentile ranks, grade equivalents

Population: Grades 1.5–12.8

Administration Time: 105–126 minutes

Reliability and Validity: Moderate to very good

Administrative Considerations: Level A, no formal training in testing required.

Achievement Individually Administered Tests

Alberta Diagnostic Mathematics Program, 1990

Author: Alberta Education

Publisher: Alberta Education

Canadian Distributor: Learning Resources Distributing Centre

Description: Five handbooks for Grades 1–3 and five for Grades 4–6. Each handbook contains evaluation strategies and follow-up instructional strategies. The titles are: numeration, operations and properties, measurement, geometry and problem solving.

Test Scores: Strong, adequate, weak ratings for grade objectives

Population: Grades 1–6

Administration Time: Untimed

Reliability and Validity: Not available

Administrative Considerations: Level A, no formal training in testing required.

Alberta Diagnostic Reading Program, 1986

Author: Alberta Education

Publisher: Alberta Education

Canadian Distributor: Learning Resources Distributing Centre

Description: Forty-eight reading passages to determine students' independent, instructional and frustration reading levels. Six evaluation strategies provided: a reading process checklist, oral reading miscues, retelling, comprehension questions, cloze and sentence verification. Instructional strategies provided.

Test Scores: Independent, instructional, frustration reading level

Population: Grades 1½–6

Administration Time: Untimed

Reliability and Validity: Not available

Administrative Considerations: Level A, no formal training in testing required.

Basic Reading Inventory, Sixth Edition, 1994

Author: J. L. Johns

Publisher: Kendall/Hunt Publishing Co.

Canadian Distributor: The Testing Materials Resource Book

Description: Measures four reading levels (independent, instructional, frustration and listening), for each of three subtests (word recognition in isolation and in context, and comprehension). Five equivalent forms.

Test Scores: Independent, instruction, frustration, listening

Population: Grades 1–10

Administration Time: Untimed

Reliability and Validity: Not available

Administrative Considerations: Level A, no formal training in testing required.

Burns/Roe Informal Reading Inventory Fourth Edition, 1993

Author: B. D. Roe and P. C. Burns

Publisher: Houghton Mifflin

Distributor: Information unavailable

Description: Measures word recognition, reading comprehension and listening comprehension. Four equivalent forms are provided for passages and two for graded word lists.

Test Scores: Independent, instructional and frustration levels for word recognition and reading comprehension

Population: Grades 1-12

Administration Time: Untimed

Reliability and Validity: Not reported in test manual

Administrative Considerations: Level A, no formal training in testing required.

Canada Quick Individual Education Test, 1990 (CANADA QUIET)

Authors: C. T. Wormelli and D. E. Carter
Publisher: Canadian Edumetrics Ltd., White Rock, British Columbia

Canadian Distributor: The Testing Materials Resource Book

Description: Measures spelling, mathematics, word identification and passage comprehension.

Test Scores: Standard scores and percentiles

Population: Grades 2-12 (mathematics and word identification subtests may also be administered to Grade 1 students)

Administration Time: 30-60 minutes

Reliability and Validity: Good

Administrative Considerations: Level B, requires formal training in testing. The manual recommends administration by an examiner who passes native fluency in English.

Diagnostic Achievement Battery 2, 1990 (DAB-2)

Author: Phyllis L. Newcomer

Publisher: PRO-ED Inc.

Canadian Distributors: Multi-Health Systems Inc., Mind Resources Inc., Guidance Centre, The Testing Materials Resource Book

Description: Measures listening, reading, mathematics, speaking, writing (12 subtests).

Test Scores: Standard scores, percentile ranks

Population: 6-14 years

Administration Time: Untimed, 30-90 minutes

Reliability and Validity: Good to excellent

Administrative Considerations: Level B, requires formal training in testing, some subtests are suitable for group use.

Diagnostic Test of Arithmetic Strategies 1984 (DTAS)

Authors: H. P. Ginsburg and S. C. Mathews

Publisher: PRO-ED Inc.

Canadian Distributors: Mind Resources Inc., The Testing Materials Resource Book

Description: Evaluates strategies students use in performing addition, subtraction, multiplication and division. A profile of strategies used can be obtained. Remedial approaches provided in manual.

Test Scores: None

Population: Grades 1-6

Administration Time: Untimed

Reliability and Validity: Not reported in test manual

Administrative Considerations: Level A, no formal training in testing required, also suitable for group use.

Formal Reading Inventory 1986 (FRI)

Author: F. L. Wiederholt

Publisher: PRO-ED Inc.

Canadian Distributor: Mind Resources Inc.

Description: Assesses silent reading comprehension and oral reading miscues (meaning similarity, function similarity, graphic/phonemic similarity, multiple sources and self-correction) equivalent forms for oral and silent reading comprehension.

Test Scores: Silent reading quotient

Population: Grades 1-12

Administration Time: Untimed

Reliability and Validity: Good

Administrative Considerations: Level A, no formal training in testing required, silent reading forms suitable for group use, oral reading forms suitable for individual administration.

Grey Oral Reading Test 3, 1992 (GORT-3)

Authors: F. L. Wiederholt and B. R. Bryant

Publisher: PRO-ED Inc.

Canadian Distributors: Multi-Health Systems Inc., Mind Resources Inc., James Battle & Associates, The Testing Materials Resource Book, The Psychological Corporation

Description: Assesses oral reading rate, errors and comprehension. Manual provides a system for analyzing miscues.

Test Scores: Standard scores, percentile ranks, grade equivalent scores

Population: 7-18 years

Administration Time: Untimed, 20–30 minutes
Reliability and Validity: Very good
Administrative Considerations: Level B, requires formal training in testing.

Kaufman Test of Educational Achievement, 1985 (K-TEA)

Authors: Alan S. Kaufman and Nadeen L. Kaufman
Publisher: American Guidance Service
Canadian Distributor: Psycan
Description: Assesses educational achievement. Two forms are available. The comprehensive form includes mathematics computation/applications, reading decoding/comprehension and spelling. The brief form includes reading, mathematics and spelling achievement.
Test Scores: Percentile ranks for grade and age, age and grade equivalent scores, stanines, normal curve equivalents, standard scores
Population: 6–18 years, Grades 1–12
Administration Time: Brief form 20–30 minutes, Comprehensive form 30–60 minutes
Reliability and Validity: Moderate to excellent
Administrative Considerations: Level B, requires formal training in testing.

Keymath-Revised (Canadian Edition): A Diagnostic Inventory of Essential Mathematics, 1991

Author: A. J. Connolly
Publisher: Psycan
Canadian Distributor: Psycan
Description: Consists of 13 subtests: numeration, rational numbers, geometry, addition, subtraction, multiplication, division, mental computation, measurement, time and money, estimation, interpreting data and problem solving.
Test Scores: Grade equivalent scores, standard scores, scaled scores, percentile ranks
Population: ECS to Grade 9
Administration Time: 30–50 minutes
Reliability and Validity: Very good to excellent
Administrative Considerations: Level B, requires formal training in testing.

Nelson-Denny Reading Test, 1993

Authors: J. I. Brown, V. V. Fishco and G. S. Hanna
Publisher: Riverside Publishing Co.
Canadian Distributor: Nelson Canada
Description: Assesses student achievement and progress in vocabulary, comprehension and reading rate. Two equivalent forms available.
Test Scores: Percentile ranks, grade equivalents
Population: Grades 9–12 and adults
Administration Time: 35–45 minutes
Reliability and Validity: Not available for current edition
Administrative Considerations: Level A, no formal training in testing required, also suitable for group use.

Peabody Individual Achievement Test, Revised, 1989 (PIAT-R)

Author: F. C. Markwardt, Jr.
Publisher: American Guidance Service
Canadian Distributor: Psycan
Description: Measures general information, reading recognition, reading comprehension, spelling, mathematics and written expression.
Test Scores: Percentile ranks for age and grade, grade and age equivalent scores, standard scores, stanines, normal curve equivalents
Population: ECS to Grade 12
Administration Time: 50–70 minutes
Reliability and Validity: Very good to excellent
Administrative Considerations: Level B, requires formal training in testing.

Qualitative Reading Inventory, 1995

Authors: L. Leslie and J. Caldwell
Publisher: HarperCollins College Publishers
Canadian Distributor: HarperCollins Canada
Description: Provides three narrative and one expository passage for ECS to Grade 2, and three narrative and three expository passages for Grade 3 to junior high. Word lists provided to assist teachers in determining where to begin requesting a student to read passages.
Test Scores: Independent, instructional, questionable and frustration reading levels for graded word lists and passages
Population: Grades 1–9
Administration Time: Untimed
Reliability and Validity: Very good

Administrative Considerations: Level B, requires formal training in testing.

Quick-Score Achievement Test, 1987 (Q-SAT)

Authors: D. D. Hammill, J. F. Ammer, M. E. Cronin, L. H. Handelbaum and S. S. Quinby
Publisher: PRO-ED Inc.

Canadian Distributors: Mind Resources Inc.,
James Battle & Associates, The Testing
Materials Resource Book

Description: Measures proficiency in reading, writing and mathematics, and general knowledge in science, social, health and language arts. Two equivalent forms available.

Test Scores: Standard scores, percentile scores
Population: Grades 1-12

Administration Time: 40 minutes

Reliability and Validity: Good to excellent

Administrative Considerations: Level B, requires formal training in testing.

The Spellmaster Assessment and Teaching System, 1987

Author: C. R. Greenbaum

Publisher: PRO-ED Inc.

Canadian Distributors: Mind Resources Inc.,
James Battle & Associates

Description: An entry level test to determine testing starting point for regular word, irregular word and homophone tests. All tests provided at eight different levels corresponding to Grades 1-8. Manual contains techniques, strategies and activities to address areas of need.

Test Scores: None

Population: Grades 1-8

Administration Time: Untimed

Reliability and Validity: Not provided in test manual

Administrative Considerations: Level A, no formal training in testing required, also suitable for group use.

Standardized Reading Inventory, 1986 (SRI)

Author: P. Newcomer

Publisher: PRO-ED Inc.

Canadian Distributor: Mind Resources Inc.

Description: Contains 10 graded reading passages from which word recognition, oral and silent reading skills and comprehension

are assessed. Two equivalent forms available.

Test Scores: Independent, instructional and frustration reading levels

Population: Grades 1-8

Administration Time: Untimed

Reliability and Validity: Not well supported in the manual

Administrative Considerations: Level A, no formal training in testing required.

Stieglitz Informal Reading Inventory: Assessing Reading Behaviors from Emergent to Advanced Levels, 1992 (SIRI)

Author: E. L. Stieglitz

Publisher: Allyn and Bacon

Canadian Distributor: Prentice-Hall Ginn

Description: Provides two forms each for graded words in context and isolation, four forms of graded word passages and a dictated story assessment strategy for emergent readers.

Test Scores: Independent, instructional, questionable and frustration levels for word recognition and reading comprehension

Population: Grades 1-9

Administration Time: 20-30 minutes

Reliability and Validity: Not available

Administrative Considerations: Level B, requires formal training in testing.

Surveys of Problem-Solving and Educational Skills, 1987 (SPES)

Author: L. J. Meltzer

Publisher: Educators Publishing Service Inc.

Canadian Distributor: Information unavailable

Description: Provides a profile of student's strengths and weaknesses in problem-solving processes, educational skills and learning strategies.

Test Scores: Part A - survey of problem-solving skills, Part B - survey of educational skills

Population: 9-14 years, 11 months

Administration Time: 60-90 minutes

Reliability and Validity: Not included in manual

Administrative Considerations: Level B, requires formal training in testing.

Note: Manual stresses that SPES should be used only in conjunction with other educational testing.

**Test of Early Mathematics Ability —
Second Edition, 1990 (TEMA-2)**

Authors: H. F. Ginsburg and A. J. Baroody

Publisher: PRO-ED Inc.

Canadian Distributors: Mind Resources Inc.,

The Testing Materials Resource Book

Description: Assesses informal mathematics: concepts of relative magnitude, counting skills, calculation; and formal mathematics: reading and writing numbers, number facts, calculation algorithms, base-10 concepts.

Test Scores: Standard scores and percentile ranks

Population: 3-8 years

Administration Time: Untimed

Reliability and Validity: Very good to excellent

Administrative Considerations: Level A, no formal training in testing required.

**Test of Early Reading Ability, Second
Edition, 1989 (TERA-2)**

Authors: D. K. Reid, W. P. Hresko and D. D. Hammill

Publisher: PRO-ED Inc.

Canadian Distributors: Mind Resources Inc.,

The Testing Materials Resource Book

Description: Assesses knowledge of contextual meaning, alphabet and conventions of print. Two equivalent forms.

Test Scores: Percentile ranks, normal curve equivalents, reading quotients. All scores are based on age.

Population: 3-9 years, 11 months

Administration Time: Untimed

Reliability and Validity: Good to very good

Administrative Considerations: Level B, requires formal training in testing.

**Test of Early Written Language, 1988
(TEWL)**

Author: W. P. Hresko

Publisher: PRO-ED Inc.

Canadian Distributors: Mind Resources Inc.,

James Battle & Associates, The Testing Materials Resource Book

Description: Assesses emerging written language skills of young children.

Test Scores: Standard scores, percentile ranks. All scores are based on age.

Population: 3-7 years

Administration Time: Untimed, 10-30 minutes

Reliability and Validity: Good to very good

Administrative Considerations: Level B, requires formal training in testing.

**Test of Mathematical Abilities — Second
Edition, 1994 (TOMA-2)**

Authors: V. L. Brown, M. E. Cronin and E. McEntire

Publisher: PRO-ED Inc.

Canadian Distributor: James Battle & Associates

Description: Measures mathematical ability in five areas: vocabulary, computation, general information, story problems and attitude towards mathematics.

Test Scores: Standard scores and percentile ranks

Population: 8-18 years, 11 months

Administration Time: 120-130 minutes

Reliability and Validity: Moderate to very good

Administrative Considerations: Level B, requires formal training in testing; also suitable for group use.

**The Test of Reading Comprehension,
Revised Edition, 1986 (TORC)**

Authors: V. L. Brown, D. D. Hammill and F. L. Wiederholt

Publisher: PRO-ED, Inc.

Canadian Distributors: Mind Resources Inc.,

James Battle & Associates, Guidance Centre, The Testing Materials Resource Book, The Psychological Corporation, Psycan

Description: Assesses general vocabulary, syntactic similarities, paragraph reading, sentence sequencing, mathematics vocabulary, social studies vocabulary, science vocabulary and reading directions of school work.

Test Scores: Reading comprehension quotient, standard scores for each subtest, percentile ranks. All scores are based on age.

Population: Grades 2-12

Administration Time: Untimed; approximately 105 minutes

Reliability and Validity: Very good to excellent

Administrative Considerations: Level B, requires formal training in testing.

Test of Written Language — Second Edition, 1988 (TOWL-2)

Authors: D. D. Hammill and S. C. Larsen

Publisher: PRO-ED Inc.

Canadian Distributors: Mind Resources Inc.,
Guidance Centre, The Testing Materials
Resource Book, The Psychological
Corporation

Description: Assesses 10 written language
areas: thematic maturity, contextual
vocabulary, syntactic maturity, contextual
spelling, contextual style, vocabulary, style
and spelling, logical sentences and sentence
combining. Two alternate forms provided.

Test Scores: Standard scores, percentile scores

Population: Grades 2–12, 7–17 years

Administration Time: Untimed except 15 minute
limit for story composition

Reliability and Validity: Moderate to very good

Administrative Considerations: Level B, requires
formal training in testing; also suitable for
group use.

Test of Written Spelling — Third Edition, 1994 (TWS-3)

Authors: S. C. Larsen and D. D. Hammill

Publisher: PRO-ED Inc.

Canadian Distributor: James Battle &
Associates

Description: Measures students' spelling
abilities for words easily predictable by their
sound and for more irregular words.

Test Scores: Standard scores, percentile ranks

Population: Grades 1–12

Administration Time: Untimed, approximately 20
minutes

Reliability and Validity: Very good to excellent

Administrative Considerations: Level A, no
formal training in testing required, also
suitable for group use.

Weschler Individual Achievement Test, 1992 (WIAT)

Author: The Psychological Corporation

Publisher: The Psychological Corporation

Canadian Distributors: The Testing Materials
Resource Book, The Psychological
Corporation

Description: Measures basic reading, reading
comprehension, total reading, mathematical
reasoning, numerical operations, total
mathematics, listening comprehension, oral
expression, total language, spelling, written
expression, total writing.

Test Scores: Standard scores, percentile ranks,
grade and age, equivalent scores, stanines,
normal curve equivalents

Population: 5–19 years

Administration Time: Untimed, 30–75 minutes

Reliability and Validity: Very good to excellent

Administrative Considerations: Level B, requires
formal training in testing.

Wide Range Achievement Test, 1993 (WRAT-3)

Author: J. S. Wilkinson

Publisher: Jastak Associates/Wide-Range Inc.

Canadian Distributors: James Battle &
Associates, Guidance Centre, The Testing
Materials Resource Book

Description: Assesses basic reading, spelling
and mathematics skills with two alternative
test forms.

Test Scores: Standard scores, percentile ranks,
grade equivalent scores

Population: 5–75 years

Administration Time: 15–30 minutes

Reliability and Validity: Very good (validity not
addressed fully)

Administrative Considerations: Level A, no
formal training in testing required, spelling
subtest suitable for group use.

Woodcock Reading Mastery Test — Revised, 1987 (WRMT-R)

Author: Richard W. Woodcock

Publisher: American Guidance Service

Canadian Distributor: Psycan

Description: Form G is comprised of six core
subtests: visual auditory learning, letter
identification, word identification, word
attack, word comprehension, passage
comprehension and one optional test:
supplementary letter checklist. Form H is
comprised of four of the six core subtests:
word identification, word attack, word
comprehension and passage
comprehension.

Test Scores: Age and grade-based percentile
ranks, standard scores, and age and grade
equivalents

Population: 5–75+ years

Administration Time: Untimed, 10–30 minutes
per subtest

Reliability and Validity: Very good (validity is not
addressed)

Administrative Considerations: Level B, requires
formal training in testing.

Writing Process Test, 1992 (WPT)

Authors: R. Warden and T. A. Hutchinson

Publisher: Riverside Publishing Co.

Canadian Distributor: Nelson Canada

Description: Assesses skills in planning, writing and revising an original composition. This is a norm-referenced, performance-based assessment using an analytical scale. Two equivalent forms.

Test Scores: Grade equivalents

Population: Grades 2-12

Administration Time: 45 minutes, plus 30 minutes for revision

Reliability and Validity: Good

Administrative Considerations: Level A, no formal training in testing required, suitable for group use.

Intellectual

Group Administered Tests

Canadian Cognitive Abilities Test, 1990 (CCAT)

Author: Edgar N. Wright, in association with Robert L. Thorndike and Elizabeth P. Hagen

Publisher: Nelson Canada

Canadian Distributor: Nelson Canada

Description: Assesses the development of cognitive abilities related to verbal, quantitative and non-verbal reasoning, and problem solving.

Test Scores: Standard age scores

Population: Primary battery (ECS to Grade 2), Multilevel edition (Grades 3-12)

Administration Time: 90 minutes

Reliability and Validity: Moderate to very good

Administrative Considerations: Level B, requires formal training in testing.

Otis-Lennon School Ability Test, 1989 (OLSAT)

Authors: Arthur S. Otis and Roger T. Lennon

Publisher: The Psychological Corporation

Canadian Distributors: Nelson Canada, The Testing Materials Resource Book, The Psychological Corporation

Description: Measures abstract reasoning and thinking ability; provides submeasures in verbal comprehension, verbal reasoning, pictorial reasoning, figural reasoning and quantitative reasoning.

Test Scores: School ability index, percentile ranks, stanines

Population: ECS to Grade 12

Administration Time: 60-75 minutes

Reliability and Validity: Good to excellent

Administrative Considerations: Level B, requires formal training in testing.

Note: Can provide achievement versus ability comparisons when used jointly with the Stanford or Metropolitan Achievement tests. No reading is required of students in Grades 1-3.

Intellectual

Individually Administered Tests

Detroit Tests of Learning Aptitude, Third Edition, 1991 (DTLA-3)

Author: Donald D. Hammill

Publisher: PRO-ED, Inc.

Canadian Distributors: Multi-Health Systems Inc., Mind Resources Inc., James Battle & Associates, Guidance Centre, The Testing Materials Resource Book, Psycan

Description: Designed to measure general intelligence and discrete ability areas; provides submeasures in general ability (overall composite), verbal, nonverbal, attention, motor and theoretical composites.

Test Scores: Standard scores, percentiles and age equivalents

Population: 6-17 years, 11 months

Administration Time: 50-120 minutes

Reliability and Validity: Good to excellent

Administrative Considerations: Level C, restricted test requiring professional qualifications.

Kaufman Assessment Battery for Children, 1983 (Kaufman ABC)

Authors: Alan S. Kaufman and Nadeen L. Kaufman

Publisher: American Guidance Service

Canadian Distributor: Psycan

Description: Assesses cognitive development grounded in the individual's style of solving problems and processing information, provides measures on mental processing (sequential and simultaneous processing) and achievement.

Test Scores: IQ scores (mean = 100, SD = 15)

Population: 2½-6½ years

Administration Time: From 35 minutes (2-6 years) to 85 minutes (7-12½ years)

Reliability and Validity: Moderate to excellent
Administrative Considerations: Level C,
restricted test requiring professional
qualifications.

Note: Special edition of the Kaufman-ABC is a non-verbal scale available for students who are deaf or hard of hearing, speech and language disordered or non-English speaking children, 4–12½ years.

Raven's Progressive Matrices, 1983 (RPM)

Author: J.C. Raven
Publisher: The Psychological Corporation
Canadian Distributor: The Testing Materials Resource Book
Description: Considered as a non-verbal assessment of perception and thinking skills.
Test Scores: Total score, norms to convert to age equivalents
Population: Standard form: 6–65 years, Coloured form: 5–11 years, Advanced form: 11 plus years
Administration Time: 15 minutes
Reliability and Validity: Good
Administrative Considerations: Level A, no formal training in testing required.

Note: May also be group administered.

Stanford-Binet Intelligence Scale – Fourth Edition, 1986 (SB-IV)

Authors: Robert L. Thorndike, Elizabeth P. Hagen and Jerome M. Sattler
Publisher: Nelson Publishing
Canadian Distributor: Nelson Canada
Description: Measures cognitive abilities that provide an analysis of the pattern as well as the overall level of an individual's cognitive development; provides submeasures in verbal reasoning, abstract/visual reasoning, quantitative reasoning and short-term memory
Test Scores: IQ scores (Standard Age Scores)
Population: 2 years to adult
Administration Time: From about 30 minutes for preschoolers to one hour for older students
Reliability and Validity: Very good to excellent
Administrative Considerations: Level C, restricted test requiring professional qualifications.

Test of Memory and Learning, 1994 (TOMAL)

Authors: Cecil R. Reynolds and Erin D. Bigler
Publisher: PRO-ED Inc.
Canadian Distributors: Mind Resources Inc., James Battle & Associates
Description: Evaluates students referred for learning disabilities, traumatic brain injury, neurological diseases, serious emotional disturbance, and attention-deficit/hyperactivity disorder.
Test Scores: Scaled scores and percentiles
Population: 5–19 years
Administration time: 40–45 minutes
Reliability and Validity: Not available
Administrative Considerations: Level C, restricted test requiring professional qualifications.

Test of Nonverbal Intelligence – Second Edition, 1990 (TONI-2)

Authors: Linda Brown, Rita J. Sherbenov and Susan K. Johnsen
Publisher: PRO-ED Inc.
Canadian Distributors: Mind Resources Inc., James Battle & Associates, Guidance Centre, The Testing Materials Resource Book
Description: A language-free measure of abstract/figural problem solving.
Test Scores: Total score, standard score and percentile rank
Population: 5–85 years, 11 months
Administration Time: 15–30 minutes
Reliability and Validity: Good
Administrative Considerations: Level C, restricted test requiring professional qualifications.

Wechsler Intelligence Scale for Children – Third Edition, 1991 (WISC-III)

Author: David Wechsler
Publisher: The Psychological Corporation
Canadian Distributor: The Psychological Corporation
Description: A measure of a student's intellectual ability, provides submeasures in verbal and non-verbal reasoning skills.
Test Scores: IQ scores (mean = 100, SD = 15), subtest scores (mean = 10)
Population: 6–16 years, 11 months
Administration Time: 50–75 minutes
Reliability and Validity: Good to excellent

Administrative Considerations: Level C, restricted test requiring professional qualifications.

Wechsler Preschool and Primary Scale of Intelligence, Revised, 1989 (WPPSI-R)

Author: David Wechsler

Publisher: The Psychological Corporation
Canadian Distributor: The Psychological Corporation

Description: A measure of a child's intellectual ability, provides submeasures in verbal and non-verbal reasoning skills.

Test Scores: IQ scores (mean=100, SD=15), subtest scores 9 mean = 10)

Population: 2 years, 11 months to 7 years, 3 months

Administration time: 75 minutes

Reliability and Validity: Good to excellent

Administrative Considerations: Level C, restricted test requiring professional qualifications.

Wide-Range Assessment of Memory and Learning, 1990 (W-RAML)

Authors: David Sheslow and Wayne Adams

Publisher: Wide-Range Inc.

Canadian Distributor: Guidance Centre

Description: Allows the user to evaluate a student's ability to actively learn and memorize a variety of information.

Test Scores: Scaled scores and standard scores

Population: 5-17 years

Administration Time: 45-60 minutes

Reliability and Validity: Good to excellent

Administrative Considerations: Level C, restricted test requiring professional qualifications.

Woodcock-Johnson Psycho-Educational Battery-Revised, 1991 (WJ-R)

Authors: Richard W. Woodcock and M. Bonner Johnson

Publisher: The Riverside Publishing Company
Canadian Distributor: Nelson Canada

Description: Measures cognitive abilities, scholastic aptitudes and achievement. In terms of academics, a broad reading, mathematics, written language and knowledge score are provided. The broad reading score includes letter-word identification, passage comprehension, word attack and reading vocabulary. Calculation,

applied problems and quantitative concepts make up the broad mathematics score. The broad written language score includes dictation, writing samples, proofing, writing fluency, punctuation and capitalization, spelling and usage. Science, social studies and humanities make up the broad knowledge score.

Test Scores: Cluster scores, average age scores, percentile ranks

Population: 2-90 years

Administration Time: 30-40 minutes for the Standard battery, an additional 40 minutes for the Supplemental battery

Reliability and Validity: Good to excellent

Administrative Considerations: Level C, restricted test requiring professional qualifications.

Language

Individually Administered Tests

Clinical Evaluation of Language Functions, Revised (CELF-R)

Authors: E. Semel, E.H. Wiig, W. Secord

Publisher: The Psychological Corporation
Canadian Distributor: The Psychological Corporation

Description: Eleven categories verbal test measuring language processing and production, including phrase and sentence imitation, phrase completion, serial recall, phoneme recall production, abstraction, formulation of attributes, syntax and morphology, semantics, memory, and word finding and retrieval.

Test Scores: Standard scores, percentile ranks and age equivalents

Population: ECS to Grade 12

Administration Time: One to two hours

Reliability and Validity: Good to very good

Administrative Considerations: Level B, requires formal training in testing.

**Expressive One-Word Picture
Vocabulary Test, Revised, 1990 (EO-
WPVT-R)**

Author: M. F. Gardener
Publisher: Academic Therapy Publications
Canadian Distributor: Institute of Psychological
Research Inc.
Description: 110-item verbal test of definitional
and interpretational skills where student
names pictures.
Test Scores: Deviation IQs, percentiles, mental
age equivalents
Population: 2-12 years
Administration Time: Untimed, approximately 20
minutes
Reliability and Validity: Good
Administrative Considerations: Level B, requires
formal training in testing.

**Peabody Picture Vocabulary Test,
Revised, 1981 (PPVT-R)**

Authors: L. M. Dunn and L. M. Dunn
Publisher: American Guidance Services
Canadian Distributor: Psycan
Description: Measures receptive (hearing)
vocabulary. Two equivalent forms.
Test Scores: Percentile ranks, stanines and age
equivalent scores
Population: 2.6-40 years
Administration Time: 10-20 minutes
Reliability and Validity: Moderate to very good
Administrative Considerations: Level B,
requires formal training in testing.

Preschool Language Scale, 1992 (PLS-3)

Authors: I. L. Zimmerman, V. G. Steiner and R.
E. Pond
Publisher: The Psychological Corporation
Canadian Distributor: The Psychological
Corporation
Description: Measures receptive and expressive
language abilities.
Test Scores: Developmental ages
Population: Birth to 7 years
Administration Time: Untimed, 20 minutes
Reliability and Validity: Not available
Administrative Considerations: Level B, requires
formal training in testing.

**Test of Language Development, 1988
(TOLD-2)**

Authors: P. L. Newcomer and D. D. Hammill
Publisher: PRO-ED Inc.
Canadian Distributors: Multi-Health Systems
Inc., The Psychological Corporation

Description: Seven subtests measure spoken
language components: picture vocabulary,
oral vocabulary, grammatical understanding,
sentence imitation, grammatical completion,
word articulation, word discrimination.

Test Scores: Standard scores, percentiles, age
equivalents, quotients

Population: 4-8 years, 11 months

Administration Time: Untimed, approximately 40
minutes

Reliability and Validity: Good

Administrative Considerations: Level B, requires
formal training in testing.

**The Word Test — Elementary-Revised,
1990**

Authors: C. Jorgensen, M. Barrett, R. Huisingsh
and L. Zachman

Publisher: Linguisystems Inc.

Distributor: Linguisystems Inc.

Description: Orally assesses students'
expressive vocabulary and understanding of
semantics in six contexts: associations,
synonyms, semantic absurdities, antonyms,
definitions and multiple definitions.

Test Scores: Age equivalents, percentile ranks
and standard scores

Population: 7-11 years

Administration Time: Untimed, 30 minutes

Reliability and Validity: Moderate to good

Administrative Considerations: Level B, requires
formal training in testing.

Perceptual/Motor

**Bruininks-Oseretsky Test of Motor
Proficiency (1978)**

Author: Robert H. Bruininks

Publisher: American Guidance Service

Canadian Distributor: Psycan

Description: Forty-six items of physical tasks,
and paper and pencil tasks. Assesses level
of motor development. Items are grouped
into eight subtests: running speed and
agility, balance, bilateral coordination,
strength, upper-limb coordination, response
speed, visual-motor control, upper limb
speed and dexterity. There is a short form
available with 14 items from the test.

Test Scores: Gross motor composite, fine motor
composite, battery composite

Population: 4½-14½ years

Administration Time: 60 minutes (long form), 20
minutes (short form)

Reliability and Validity: Moderate
Administrative Considerations: Level B, physical education teachers with formal training in testing, physical and occupational therapists.

Developmental Test of Visual-Motor Integration, Third Revision, 1989 (VMI)

Authors: Keith E. Beery and Norman A. Buktenica
Publisher: Modern Curriculum Press
Canadian Distributor: Mind Resources Inc.
Description: Paper and pencil task, copying geometric figures, assesses visual-motor coordination.
Test Scores: Total score used for age equivalents, percentiles, standard scores, T-score
Population: 3-18 years
Administration Time: Not given
Reliability and Validity: Good
Administrative Considerations: Level A, no formal training in testing required, suitable for group or individual use.

Developmental Test of Visual Perception, Second Edition, 1993 (DTVP-2)

Authors: Donald D. Hammill, Nils A. Pearson and Judith K. Voress
Publisher: PRO-ED Inc.
Canadian Distributor: Psycan
Description: Eight subtests — scores given as general visual perception, motor-reduced visual perception and visual-motor integration. Motor-reduced visual perception includes position in space, figure-ground, visual closure and form constancy. Visual-motor integration includes eye-hand coordination, copying, spatial relations and visual-motor speed.
Test Scores: Age equivalents
Population: 4-10 years, 11 months
Administration Time: Approximately 45 minutes
Reliability and Validity: Moderate
Administrative Considerations: Level B, requires formal training in testing, suitable for group or individual use.

Jordan Left-Right Reversal Test — Revised (1990)

Author: Jordan
Publisher: Academic Therapy Publications
Canadian Distributor: The Testing Materials Resource Book
Description: Level 1, reversals of capital letters and numerals; Level 2, reversed lower-case letters within words and whole word reversals within sentences. Can be used as a screening device by classroom teachers for reversal difficulties. Remediation exercises included in manuals.
Test Scores: Percentiles ranks based on age
Population: 5-12 years
Administration Time: Untimed, approximately 20 minutes
Reliability and Validity: Good to very good
Administrative Considerations: Level A, no formal training in testing required, also suitable for group administration.

Motor-Free Visual Perception Test — Revised, 1996 (MVPT-R)

Authors: Ronald P. Colarusso and Donald D. Hammill
Publisher: Academic Therapy Publications
Canadian Distributor: Artel Educational Resources Ltd.
Description: Assesses visual perception — 36 items divided into five sections.
Test Scores: Total score used to calculate age equivalent and perceptual quotient
Population: 4-11 years
Administration Time: 15 minutes
Reliability and Validity: Moderate
Administrative Considerations: Level B, requires formal training in testing, suitable for individual use.

Sensory Integration and Praxis Tests, 1989 (SIPT)

Author: A. Jean Ayres
Publisher: Western Psychological Services
Distributor: Western Psychological Services
Description: Assesses sensory integration and motor planning abilities thought to underlie learning ability. The test consists of 17 subtests such as space visualization, standing and walking balance, constructional praxis, finger identification and localization of tactile stimuli.

Test Scores: The test must be scored by Western Psychological Services. WPS returns a report containing total scores for the subtests, and comparisons to six diagnostic groups.

Population: 4–8 years, 11 months

Administration Time: Approximately two hours

Reliability and Validity: Moderate

Administrative Considerations: Level C, restricted test requiring professional qualifications, must be a specially-trained occupational or physical therapist, certified to administer the test, suitable for individual use.

Test of Gross Motor Development, 1985 (TGMD)

Author: Dale A. Ulrich

Publisher: PRO-ED Inc.

Canadian Distributors: Mind Resources Inc., Psycan

Description: Multiple tasks divided into two groups — locomotor skills and object control skills. Assesses motor skills such as running, skipping, catching and throwing.

Test Scores: Subtest standard scores, percentiles, composite quotient

Population: Ages 3–10 years, 11 months

Administration Time: 15 minutes

Reliability and Validity: Moderate

Administrative Considerations: Level B, requires formal training in testing, suitable for individual use.

Test of Legible Handwriting, 1989 (TOLH)

Authors: Stephen C. Larsen and Donald D. Hammill

Publisher: PRO-ED Inc.

Canadian Distributors: Mind Resources Inc., Psycan

Description: Paper and pencil tasks. Subjects write two essays or samples of writing on a variety of topics. Assesses handwriting legibility.

Test Scores: Standard scores, percentiles, composite quotients, grade equivalents

Population: Grades 2–12, ages 7–18½ years

Administration Time: 30 minutes (15 minutes for each writing sample)

Reliability and Validity: Moderate

Administrative Considerations: Level B, requires formal training in testing, suitable for individual or group use.

Test of Visual-Motor Skills, 1986 (TV-MS)

Author: Morrison F. Gardner

Publisher: Psychological and Education Publications Inc.

Canadian Distributor: M.D. Angus & Associates Ltd.

Description: Paper and pencil test — copying geometric figures. Assesses visual-motor coordination.

Test Scores: Total score used for percentiles, standard scores and age equivalents

Population: 2–12 years, 11 months

Administration Time: Approximately five minutes

Reliability and Validity: Moderate

Administrative Considerations: Level A, no formal training in testing required, suitable for group or individual use.

Test of Visual-Perceptual Skills (non-motor), 1982 (TVPS)

Author: Morrison F. Gardner

Publisher: Special Child Publications

Canadian Distributor: Institute of Psychological Research Inc.

Description: Seven subtests — visual discrimination, visual memory, visual-spatial relationships, visual form constancy, visual sequential memory, visual figure ground, visual closure. Assesses visual perception.

Test Scores: Subtest scores — age equivalents, scaled scores, percentile; Total score — median perceptual ages, perceptual quotient, percentile

Population: 4–12 years, 11 months

Administration Time: Approximately 15 minutes

Reliability and Validity: Moderate

Administrative Considerations: Level B, requires formal training in testing, suitable for individual use.

Standards of Competence: Level of Tests and Qualifications

Levels	Minimum Qualifications	Selected Examples
Level A Tests No formal training in testing required	➤ Four years teacher education inclusive of a Bachelor's degree ➤ Experience working within school systems (as a teacher and/or consultant) ➤ Familiarity with topic ➤ Able to follow administration procedures set out in manual ➤ Informal training; e.g., inservice in the use of a particular instrument	➤ Alberta Achievement Tests ➤ Gates-McGinitie Reading Tests ➤ Metropolitan Readiness Tests ➤ Alberta Diagnostic Reading/Mathematics Tests ➤ Teacher Alert System ➤ Stanford Diagnostic Mathematics/Reading Tests ➤ Canadian Tests of Basic Skills ➤ Informal reading/mathematics/spelling inventories
Level B Tests Requires formal training in testing	➤ Four years teacher education inclusive of a Bachelor's degree ➤ Experience working within school systems (as a teacher and/or consultant) ➤ Senior undergraduate or graduate course work in test principles (reliability, validity, test construction, norm groups, types of scores), administration and interpretation ➤ Training in specific area related to test ➤ Experience administering and interpreting test	➤ Peabody Picture Vocabulary Test, revised ➤ Woodcock Reading Mastery Tests ➤ Tests of Language Development II ➤ Detroit Test of Learning Aptitude ➤ Wechsler Individual Achievement Test ➤ Woodcock-Johnson Psycho-educational Battery, revised Achievement (Part II)
Level C Tests Restricted tests requiring professional qualifications	➤ Four years teacher education inclusive of a Bachelor's degree ➤ Experience working within school systems (as a teacher and/or consultant) ➤ Recognized Master's degree with a major in special education or educational psychology, including • graduate course work in test principles (reliability, validity, test construction, norm groups, types of scores), and • graduate course work in administering and interpreting individual tests ➤ Fulfill any additional requirements as stipulated by the test publisher as being necessary of desirable for administration of each particular test instrument. <i>It is expected that individuals administering and interpreting Level C tests will be eligible for registration as a Chartered Psychologist with the Psychologists Association of Alberta.</i>	➤ Intelligence Scales (WISC-III, WAIS-R, WPPSI-R, Stanford Binet IV, K-ABC) ➤ Personality Tests (High School Personality Questionnaire, Personality Inventory for Children, projective instruments) ➤ Self-esteem inventories ➤ Bender Visual Motor Gestalt Test ➤ Depression inventories ➤ ADD inventories ➤ Torrance Tests of Creative Thinking ➤ Woodcock-Johnson Psycho-educational Battery, revised, Cognitive Ability (Part I)

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Telephone: 1-800-263-3558

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Toronto, ON M8Z 4X6
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Port Coquitlam, BC V3C 1T5
Telephone: (604) 464-7919

Western Psychological Services
Division of Manson Western Corp.
12031 Wilshire Blvd.
Los Angeles, CA 90025
Telephone: (310) 478-2061

Section 9

Support Networks

Learning Disabilities Associations

Alberta

145, 11343 - 61 Ave.
Edmonton, AB T6H 1M3
Telephone: (403) 448-0360
Fax: (403) 438-0665

British Columbia

#909, 750 W. Broadway
Vancouver, BC V5Z 1H1
Telephone: (604) 588-6322
Fax: (604) 588-6344

Manitoba

60 Maryland St., 2nd Floor
Winnipeg, MB R3G 1K7
Telephone: (204) 774-1821
Fax: (204) 788-4090

New Brunswick

88 Prospect St. West
Fredericton, NB E3B 2T8
Telephone: (506) 457-1227
Fax: (506) 458-1352

Newfoundland

P.O. Box 26036
St. John's, NF A1E 5T9
Telephone: (709) 754-3665
Fax: (709) 754-3678

Northwest Territories

P.O. Box 242
Yellowknife, NWT X1A 2N2
Telephone: (403) 873-6378
Fax: (403) 873-6378

Nova Scotia

55 Ochterloney St.
Dartmouth, NS B2Y 1C3
Telephone: (902) 464-9751
Fax: (902) 464-9167

Ontario

365 Bloor St. East, P.O. Box 39
Suite 1004
Toronto, ON M4W 3L4
Telephone: (416) 929-4311
Fax: (416) 929-3905

Prince Edward Island

P.O. Box 1081
Charlottetown, PEI C1A 7M4
Telephone: (902) 892-9664
Fax: (902) 368-3420

Quebec

300, 284 rue Notre-Dame O.
Montreal, PQ H2Y 1T7
Telephone: (514) 847-1324
Fax: (514) 281-5187

Saskatchewan

Albert Community Centre
26, 610 Clarence Ave. South
Saskatoon, SK S7H 2E2
Telephone: (306) 652-4114
Fax: (306) 652-3220

Yukon Territory

P.O. Box 4853
Whitehorse, YT Y1A 4N6
Telephone: (403) 668-5167
Fax: (403) 668-5167

Post-secondary Support Services

The following is a list of some Alberta post-secondary institutions that offer support services for students with learning disabilities. Some also offer scholarships. Two scholarships are available to post-secondary students with learning disabilities from the Learning Disabilities Association of Canada (the Carol Thomson Memorial Fund Scholarship and the Doreen Kronick Scholarship). Additional information on services and scholarships is available from each institution.

Alberta Vocational Colleges

There are Alberta Vocational Colleges in Edmonton, Calgary, Lesser Slave Lake and Lac La Biche. Each college has regional campuses in their area. Each campus offers its own support services which may include: referrals for assessment, alternate format materials, learning strategies instruction, assistive technology access and training, peer note-takers or scribes, exam accommodations and liaison committee. Contact the Learning Support Services office for more information.

Athabasca University

Counselling
Edmonton

Telephone: (403) 497-3406

Calgary

Telephone: (403) 298-2909

Offers administration support, additional time to complete courses and examinations, and electronic examination writing.

Augustana University College

4907 - 46 Ave.

Camrose, AB T4V 2R3

Telephone: (403) 679-1102

Fax: (403) 679-1129

Provides study skill sessions and, when feasible, offers special arrangements tailored to individual needs in order for students to complete course requirements and examinations.

Canadian Union College

235 College Ave.

College Heights, AB T4L 2E5

Telephone: (403) 782-3381

Fax: (403) 782-3170

Offers subject-area tutoring, writing labs, assessment and counselling.

Concordia University College

Students Affairs

7128 Ada Blvd.

Edmonton, AB T5B 4E4

Telephone: (403) 479-9241

Fax: (403) 474-1933

Provides support services on an individual basis (readers, note-takers, specialized equipment, extended exam time, etc.).

Fairview College

Learner Services Centre

P.O. Box 300

Fairview, AB T0H 1L0

Telephone: (403) 835-6600

Fax: (403) 835-6698

The centre will be established in January 1997 to aid students in such areas as study skills, time management, examination techniques, etc.

Grande Prairie Regional College

10726 - 106 Ave.

Grande Prairie, AB T8V 4C4

Telephone: (403) 539-2062

Fax: (403) 539-2888

Provides academic accommodations according to individual needs.

Grant MacEwan Community College

10700 - 104 Ave.

Edmonton, AB T5J 4S2

Telephone: (403) 497-5815 or 497-5811

Fax: (403) 497-5001

Provides a full range of support services for the individual student.

Lakeland College

Student Services

5707 - 47 Ave. West

Vermilion, AB T9X 1K5

Telephone: (403) 871-5722

Lloydminster

Telephone: (403) 853-8434

Support services provided on an individual basis.

Lethbridge Community College

Learning Centre

3000 College Drive South

Lethbridge, AB T1K 1L6

Telephone: (403) 320-3200

Fax: (403) 320-1461

The learning disability specialist offers assessment, provides instruction in alternative learning strategies, offers course support, advocates for appropriate accommodations and provides access to assistive technologies.

Medicine Hat College

Student Services

299 College Drive S.E.

Medicine Hat, AB T1A 3Y6

Telephone: (403) 529-3819

Fax: (403) 527-1915

Provides readers, tutors and study skills sessions, and offers additional time to complete courses and examinations.

Mount Royal College

Learning Skills Centre

4825 Richard Road S.W.

Calgary, AB T3E 6K6

Telephone: (403) 240-6525

Fax: (403) 240-6698

The Learning Skills Centre has a part-time learning disability coordinator and a part-time learning disabilities secretary. The

college offers students with disabilities a variety of services. Individual remediation is provided for some students (help with reading, fluency and/or decoding; written expression; handwriting; organization and attention). Some informal/formal assessment is available. Students can expect advocacy in appropriate situations (funding and accommodations).

Accommodations may include extra exam time, use of a computer for test-taking, limited loans of an electronic spell checker. On-line services for students with learning disabilities are in the planning stages.

NAIT

Services to Disabled Students

Room 0111

11762 - 106 St.

Edmonton, AB T5G 2R1

Telephone: (403) 471-8921

(TTY/TDD) same

Provides classroom support services, such as audiotaping materials, audiotaping classes, braille and large print materials, classroom aides, note-taking, NCR paper for note-takers, supportive equipment, tutoring, visual language interpretation.

Counselling services include academic and study counselling, career counselling, financial assistance, personal counselling, (provided by Services to Disabled Students and by Student Counselling). Examination services include alternate examination arrangements, readers/scribes, specialized equipment.

North American Baptist College

11525 - 23 Ave.

Edmonton, AB T6J 4T3

Telephone: (403) 437-1960

Fax: (403) 436-9416

Considers academic accommodations on an individual basis.

Olds College

4500 - 50 St.

Olds, AB T4H 1R6

Telephone: (403) 556-8365

Fax: (403) 556-4698

Support services provided on an individual basis.

Red Deer College

Services to Students with Disabilities

Room 1402

56 Ave. & 36 St.

Box 5005

Red Deer, AB T4N 5H5

Telephone: (403) 342-3165

Fax: (403) 340-8940

The student services advisor at Red Deer College provides assistance and services to students with disabilities to ease their transition to college life. Services are adapted to suit individual needs. They include: orientation to the college, special equipment, learning assistance and strategies, tutor and scribe services, academic accommodation and referrals.

SAIT

Services for Students with Disabilities

Room, M141, 1301 - 16 Ave. N.W.

Calgary, AB T2M 0L4

Telephone: (403) 284-7013

Voice and TTY

Fax: (403) 284-7093

Offers academic accommodations, additional funding for special tutors and equipment, and will arrange assessment.

University of Alberta

Office of Services for Students with Disabilities

2-800 Students Union Building

University of Alberta

Edmonton, AB T6G 2J7

Telephone: (403) 492-3381

(403) 492-7269 (TTY)

Fax: (403) 492-7297

Offers assessment, strategies for studying, exam writing, time management, organization and social interaction.

University of Calgary

Student Development Officer

Student With Disabilities

2500 University Drive N.W.

Calgary, AB T2N 1N4

Telephone: (403) 220-6920

Fax: (403) 284-0069

Provides services that include academic accommodations, adaptive technologies, skill development workshops, resource and referral information, and individual advising and advocacy.

University of Lethbridge

Student Counselling Services

SU - 140

Lethbridge, AB T1K 3M4

Telephone: (403) 329-2192

Fax: (403) 325-5159

Support services provided on an individual basis.

Section 10

Footnote References

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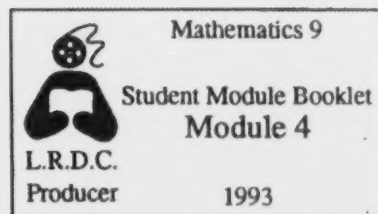
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